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**The Designers' Toolbox: Newsroom Experience
And Ideal Characteristics of Newspaper Designers**

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The Designers' Toolbox: Newsroom Experience And Ideal Characteristics of Newspaper Designers

Abstract

A survey of newspaper editors revealed that the experience levels for Page 1 designers were very similar to that of copy desk chiefs and substantially higher than that of a typical copy editor. Editors also felt that page designers needed to possess general newsroom skills, such as possessing solid news judgment, knowledge of design techniques and knowledge of grammar/style. Technical qualifications, such as computer skills, were somewhat less important. General education background was least important.

The Designers' Toolbox: Newsroom Experience And Ideal Characteristics of Newspaper Designers

As newspapers continue to change in order to meet economic and consumer demands, so too do the duties of people who work for them. This is abundantly clear in the case of people who work on the visual aspects of the newspaper -- those who do design, layout, graphics, display and pagination. These "visual" employees go by a variety of titles, but they have become an increasingly important, and integral, part of the newspaper staff. Largely regarded as a reaction to the success of the highly visual *USA Today*, the emphasis on visual elements has sparked a "design revolution" Utt and Pasternack (1989).

Little is known, however, about the journalists in charge of designing the nation's newspapers. As design has been taking on greater importance in recent years, research examining designers and characteristics of successful designers deserves attention.

The present study is based on survey responses from a random sample of daily newspapers editors about the person who typically designs their Page 1 and about the editors' attitudes regarding the characteristics necessary for a successful page designer to possess. Three areas are addressed here.

First, we asked editors the years of experience that their normal Page 1 designer has. The designers' experience was compared with the work experience of the newspapers' copy desk chiefs and their typical copy editor. Thus, we were interested in examining whether newspapers are utilizing journalists who are inexperienced relative to other news desk employees, or if Page 1 designers are seasoned newsroom veterans who, through their experience, have earned the important job of deciding how to display the day's news.

Second, and more pertinent to mass communication educators, is the question of what characteristics newspaper editors look for in their page designers. Do page designers need to know basic newsroom operation skills, such as grammar and style? Or do page designers need to have complex and advanced expertise in such areas as computer pagination systems?

Third, we examined whether the designers' experience levels and the editors' priorities differed across circulation groups. Newspapers with smaller circulations, and correspondingly fewer resources, likely will differ from larger papers in these two areas.

Designing newspaper pages is an important, but overlooked, job in the nation's newsrooms. Garcia (1993) notes that design, along with writing and editing, is one of the three basic duties in the "WED" newsroom operation. Moreover, it is the designers' job to "make the page pleasing to the eye, and thus entice the reader to sample the editorial product" (Barnhurst, 1991, p. 109).

In addition, how stories are packaged can give readers important cues as to the relative importance of certain issues (Wanta, 1988). Visuals also attract readers to an accompanying story (Baxter, Quarles and Kosak, 1978) and away from unrelated stories (Wanta and Roark, 1994).

Understanding who these page designers are and their required skills, then, may provide insight into an integral part of the newspaper industry.

Previous research

Studies of newspaper design are limited, but those that exist have focused on the nature of design, how design has changed, and who designers are.

In her study of design desks, for example, Auman (1994) noted that "[d]esign desks are at the heart of an industry in great flux. ...There are no well-marked road maps for [newspaper] managers to follow..." (p. 128). This flux may be most evident

in the various terms used to describe those who work on the visual elements of the newspaper; they are variously called page designers, graphics managers/designers/editors/directors, layout editors, artists, art directors, display designers/editors, and the like. Auman defined the design desk as "one or more people who design pages exclusively as a small department separate from other desks that gather the news and edit copy," and included layout, presentation and display desks in her description.

Miller (1992), meanwhile, described design as "the integration of verbal and visual elements into a coherent whole." He suggested that design offers a "new way to think about news and the people we are trying to sell it to. Design can help by forcing us to consider the nature of the information we are gathering, the audiences for it, and an appropriate means of presenting it to them."

Given that the 1991 Poynter Institute "Eyes on the News" survey found that readers processed 80 percent of the artwork and 75 percent of the photographs in newspapers (Garcia and Stark, 1991, p. 70), the burgeoning interest in design appears well-founded. The Society of Newspaper Designers' membership roster also speaks to the increased emphasis on design: from 22 people in 1979, the rolls swelled to more than 2,000 by 1987 (Utt and Pasternack, 1989) to more than 2,500 in 1996.

In a survey of 109 Associated Press Managing Editors, Auman (1994) found that design desks were implemented as part of a reorganization both to attract and keep readers in light of stagnating circulation, and to "make editors, reporters, designers and photographers more effective and to effectively use all available tools to tell stories." More than three-quarters of the respondents said design desks improved coordination among staff and improved the look of their paper.

Utt and Pasternack (1989) suggested the design revolution occurred because of a combination of reasons: new technologies for creating graphics became widely available, and the advent of *USA Today* sparked a greater concern about

appearance. Barnhurst and Nerone (1991) suggested that cultural changes from the Victorian style to modernism (which emphasized order and simplicity), competition with other media, and increased attention to issues of journalistic professionalism helped to focus attention on design. Moreover, they argued, the "window on the world" metaphor that is often invoked to describe the press implies visuality.

Such visuality has clearly impacted the look of newspapers. In their survey of 93 daily newspaper editors, Utt and Pasternack (1989) found that nearly 50 percent used *USA Today* for design ideas, and 90 percent believed newspaper appearance was crucial in a competitive market. In addition, 57 percent of editors said they used front-page color in 1989, as opposed to 35 percent in 1983.

One study of design trends in newspaper front pages from 1895 to 1985 showed that while illustrations accompanied stories 5.7 percent of the time in 1895, by 1985 that had increased to 21.5 percent (Barnhurst and Nerone, 1991). Furthermore, the number of column and lines per column decreased, as did average headline size (although the width of headlines increased), leading to a more tidier, less dense front page. Kenney and Lacy (1987) found that graphics and photos comprised 27 percent of the newspapers' total front page area.

As newspaper design has changed, so have designers' responsibilities, although their authority within the newsroom is not always clear. In a survey of large daily newspapers, Hilliard (1989) found that the authority ascribed to people holding positions equivalent to graphics editor or graphics director was generally about that of news editors, and slightly less than city editors, in 35 percent of the responses. More than half the respondents said the graphics editor did not hold veto power over the news editor, but more than three-quarters said that decisions about whether text or graphics would be the primary means of presenting information were shared between the graphics editors and the copy or news editor. A similar

survey showed that 43 percent of graphics managers wielded "a great deal of influence" in editorial decisions (Gentry and Zang, 1989, p. 90).

While the newsroom authority of designers varies, design elements are still sometimes likened to "fluff" and derided as "not news." Nokes (1993), for example, suggested that color should complement, not overwhelm, the news, noting that "It was a sad day when designers entered the newsroom" (p. 7).

Fitzgerald (1985) observed that while 95 percent of graphics department managers and editors said the look of the paper is very important (according to a Society of Newspaper Design survey), editors believed graphics staff members were unfamiliar with what comprises news. And, according to the editor of the *London (Ontario) Free Press*, "Designers, when totally disconnected from the process, tend to forget that what we're publishing is useful information" (in Auman, 1994, p. 139). Nonetheless, Auman (1994) found that 95 percent of design desks were created after 1985 -- 54 percent in 1991-1992 -- so it appears that designers are here to stay.

As designers have become more integrated into the newsroom, the skills they need have evolved. A survey of graphics editors found that most had commercial art backgrounds, while a few were photographers, reporters or editors who had crossed over into design (Hilliard, 1989). Another survey conducted the same year found that 54 percent of graphics editors were former photographers or photography editors, while 21 percent were former artists or art directors and 17 percent came from copy editing backgrounds (Gentry and Zang, 1989). Further, most had held their position as graphics editor for less than three years (Gentry and Zang, 1989).

A 1993 survey of graphics editors found that about one-third came from art backgrounds, one-third from news/journalism backgrounds, and one-third from art/journalism or other fields (Utt and Pasternack, 1993). Auman (1994) found that designers had acquired a variety of experiences before taking on design, including copy editing, editing with layout, reporting, and graphic artist. Moreover, survey

respondents (Associated Press Managing Editors members) said that would-be designers needed both layout/design and news judgment skills to succeed. A recent survey of integrated editors (those who work on both the written and visual parts of the newspaper) found that 61 percent came from copy editing and reporting backgrounds; others had experience with page layout as sports or features editors, or were former photographers or designers (Auman, 1995).

Indeed, designers' duties are increasing in scope and responsibility, indicating that the skills needed to thrive in a visually oriented job are changing. Russial (1995) found that nearly 50 percent of *Editor & Publisher* classified advertisements seeking editors in 1993 mentioned page design and layout skills, and more than 30 percent mentioned desktop publishing and pagination skills.

According to Gentry and Zang (1989), editors at large, metropolitan dailies look for designers who have gained skills in college and university programs (38 percent) and through internships and on-the-job training (40 percent). Auman (1994) found that designers spent half their time designing and dummied pages, 15 percent on pagination, and five to ten percent on each of writing, head/cut lines, creating infographics, photo editing, and coordinating people/elements in a story or project on a page. Managerial experience, as well as an ability to see the "big picture," was also cited as an important skill (Auman, 1995).

Clearly, the visual components of newspapers continue to change, as do the skills required of potential employees. As emphasis on visual elements continues to progress, a better picture of who designers are and what they do is needed. Such information is important not only for tracking the newspaper industry's continued changes, but also for a deeper understanding of the trends that drive those changes. Therefore, this study attempts to answer the following general questions:

- 1) How much newsroom experience do the nation's page designers possess, and how does this experience compare to other newsroom employees?

2) What are the characteristics that editors look for in page designers?

Method

A mail survey, involving a random sample of 400 national daily newspapers, was conducted in February 1994. Newspapers and addresses were randomly selected from the *1994 Editor and Publisher International Yearbook*. The questionnaire was addressed to the managing editor -- or the equivalent editor if a managing editor was not listed -- at each of the 400 newspapers. A reminder postcard was sent to newspapers two weeks after the initial mailing. Four weeks after the initial mailing, a follow-up letter and another copy of the questionnaire were sent to those newspapers that had not responded.

A total of 227 newspapers responded, for a 57 percent response rate, an acceptable rate, according to Babbie (1973). An analysis revealed that the circulations of the newspapers that returned surveys corresponded closely to the overall circulation categories of U.S. dailies as reported in the *1994 Editor & Publisher Yearbook*.

The questionnaire dealt with several aspects of newsroom operations. Included were several questions that asked editors about the person currently designing their front page and their attitudes regarding the characteristics necessary for their page designers to possess.

Editors were first asked "Approximately how many years of full-time newspaper experience does your usual Page 1 designer have?" This response was compared to the similar questions about the experience levels of the newspapers' copy desk chief and a typical copy editor. The years of experience editors reported for their copy desk chief was subtracted from the years of experience reported for their Page 1 designer. This produced a "design/copy chief" difference score. Similarly, the

years of experience for a typical copy editor was subtracted from the experience for the Page 1 designer. This resulted in a "design/copy editor" difference score.

Editors were then asked how important the following skills and backgrounds were for the newspapers' Page 1 designer: general knowledge of grammar and writing skills, general knowledge of page design techniques, liberal arts education, experience with page pagination software, solid sense of news judgment, advanced technical knowledge of computers, and appreciation of the history of the newspaper industry. The order of the items was randomly determined. Response categories were extremely important, very important, somewhat important, a little important or not at all important.

These survey items, then, ranged from general education background (liberal arts education, appreciation of the history of the newspaper industry), to technical qualifications (advanced technical knowledge of computers, experience with page pagination software), to general newsroom skills (grammar and writing skills, solid sense of news judgment, general knowledge of page design techniques).

Responding newspapers were grouped into three circulation groups: large, or newspapers with circulation of more than 45,000; medium, or newspapers with circulations of between 10,000 and 44,000, and small, or newspapers with circulations less than 10,000. Approximately 32 percent of the newspapers were grouped in the large newspaper category, 38 percent in the mid-size newspaper category and 30 percent in the small newspaper category.

Analysis of variance tests examined if the three circulation groups differed on any of the above items.

Results

Table 1 lists the means and ANOVA results comparing responses from the three circulation groups on the experience levels of copy desk employees. Generally,

the Page 1 designers had more experience than a typical copy editor. According to the designer/typical copy editor difference scores, the years of difference ranged from 2.80 at small papers to 3.90 at large papers and 4.10 at mid-size papers. Copy desk chiefs, however, had slightly more experience than Page 1 designers at both the medium (0.99 years) and large papers (1.57), but not at smaller papers, where designers had 0.60 years of experience more than the copy desk chief.

None of the differences across the three circulation groups were statistically significant. The mean years of experience for Page 1 designers was 13.10 for larger papers, 11.72 at medium-sized papers and 12.02 at small papers, producing an F-score of 0.79 ($p < .05$). The differences in years of experience between the Page 1 designers and copy desk chiefs and between the Page 1 designers and typical copy editors also were not significant across circulation groups.

Table 2 shows the means and the ANOVA results comparing responses from the three circulation groups on the characteristics editors think are important for a page designer to possess. The rankings of these characteristics were remarkably similar across circulation groups.

All newspaper groups ranked solid news judgment as the number one characteristic they look for in their page designers. The only difference between newspaper circulation groups, in fact, involved smaller papers, which ranked knowledge of grammar and style second and knowledge of page design techniques third. Medium and large papers had the rankings reversed for these two items.

Ranking fourth for all newspapers was experience with pagination systems, followed by liberal arts education (fifth) and knowledge of complex computer software (sixth). Appreciation of newspaper history was ranked last by all three newspaper circulation groups.

In general, then, newspaper editors ranked general newsroom skills ahead of technical qualifications and far ahead of general education background.

While the rankings of these characteristics were nearly identical across newspaper circulation groups, the differences in the mean ratings of several items reached the $p < .05$ level of statistical significance.

First, knowledge of page design techniques was rated more important at larger papers than at medium and smaller papers ($F = 8.49, p = .000$). Second, experience with page pagination systems was more important at larger papers than at smaller papers ($F = 5.56, p = .004$). Third, an appreciation of newspaper history was most important at large papers and least important at smaller papers ($F = 4.78, p = .009$). Finally, a solid sense of news judgment was more important at medium-sized papers and less important at smaller papers ($F = 3.01, p = .05$).

Knowledge of grammar and style barely missed statistical significance ($F = 2.85, p = .06$). Liberal arts education and knowledge of complex computer software also did not reach statistical significance.

Discussion

The purpose of this study was two-fold. First, we asked newspaper editors how many years of experience their Page 1 designers had and compared this level of experience with both the copy desk chiefs and a typical copy editor at their papers. Second, we asked editors their attitudes on the characteristics that are necessary for page designers to be successful at their papers.

The findings here show that editors' responses were remarkably similar across newspapers of different circulation sizes in their assessments of the characteristics necessary for page designers. According to our results, general newsroom skills, such as possessing a solid news judgment, knowledge of page design techniques and knowledge of grammar/style, were most important for a page designer to be successful. Technical qualifications, such as knowledge of complex computer software and experience with pagination systems, were somewhat less

important. General education background, such as an appreciation of newspaper history and a liberal arts education, was least important.

Experience levels of the newspapers' Page 1 designers also showed little difference across circulation groups. Editors in our survey generally reported that their page designers had substantial amounts of newsroom experience -- between 11.72 years at mid-sized papers to 12.02 at small papers and 13.10 at large papers. Designers' experience levels, in fact, were comparable to the experience levels of the newspapers' copy desks chiefs (which ranged from 11.66 years at small papers to 14.67 at large papers) and was substantially higher than the years of experience for the newspapers' typical copy editor (which ranged from 7.32 years at mid-sized papers to 9.02 at small papers).

It appears, then, that seasoned journalists are entrusted with the important responsibility of designing Page 1. Newspapers apparently value experience in their page designers, so much so that the experience levels of the newspapers' designers are very similar to the experience levels of the papers' copy desk chiefs. In other words, the experience levels of the person in charge of visuals are comparable to the experience levels of the person in charge of texts. This suggests that newspapers view the job of Page 1 designer as a managerial position similar to the copy desk chief. Indeed, the designer and copy desk chief may be the same person at some newspapers. Newspapers, therefore, apparently value experience in their page designer.

The lack of any discernible difference in years of experience for page designers across circulation groups, meanwhile, was surprising. Originally, we expected that page designers at smaller papers, which are more likely to hire entry-level journalists directly out of universities, would be less experienced than their counterparts at larger papers. This was not the case, however.

The lack of differences here might be due to the nature of the designer position at smaller papers. In many cases at smaller papers, the Page 1 designer is also the copy desk chief. This person also might be the only copy editor. This person, then, could be an "integrated editor" (Auman, 1995) by necessity, and thus may have compressed the differences between the years of experience for designers, copy desk chiefs and typical copy editors examined here.

Indeed, the results of the characteristics important for designers to possess lend additional support to this notion. Grammar and style knowledge ranked higher than knowledge of general page design techniques at smaller newspapers. Editing skills, then, are more important than design knowledge here because page designers at smaller papers may do more editing of copy than page designing -- and certainly more copy editing than designers at large papers do.

The more specialized position of page designer at larger papers also may explain some of the differences in the editors' ratings of important page designer characteristics. Knowledge of page design techniques, for example, was more important at larger papers and less important at smaller papers. Many larger papers have design desks, where journalists' sole responsibility is designing pages. Many smaller papers, with fewer employees, cannot afford the luxury of a design desk. Therefore, journalists at smaller papers have responsibilities other than design. At smaller papers, journalists may design pages, write headlines and edit stories. Thus, at smaller papers, design knowledge is but one characteristic that an editor would expect their designers to possess.

Experience with page pagination systems was a lower priority with smaller papers, again perhaps because of the specialization of skills expected at larger papers. Larger papers are more likely to have pagination systems in operation. Thus, if they hire an employee to do page design, the larger papers would expect the employee to

know how to operate the software. Experience with pagination systems was less critical for smaller papers since fewer of these papers utilize these computer systems.

Appreciation of newspaper history was most important at large papers and least important at medium papers. Perhaps larger papers, which typically hire their employees away from other newspapers, expect their employees to appreciate the industry more than editors at smaller papers would. With experience at more newspapers, page designers at larger papers might be expected to better appreciate their roots in the industry. Editors also may equate history with an advanced understanding of the business of journalism, which again may be perceived to be more important at larger papers.

Finally, a solid sense of news judgment was most important at medium papers and less important at smaller papers. One plausible explanation might be that medium-size papers offer more autonomy to their employees. On the one hand, larger papers have more bureaucracy in the newsroom and thus, news judgment decisions are taken out of the hands of the designer and placed inside the management bureaucracy. High-level editors at smaller papers, on the other hand, might take ultimate responsibility for the selection of stories for Page 1. Editors here may decide what they want on their front pages, again taking this responsibility out of the hands of the page designer. Thus, Page 1 designers at mid-size papers may be more likely to have ultimate responsibility for the entire output of Page 1, or more responsibility than designers at either smaller or larger papers.

Overall, however, it should be noted that the rankings of characteristics were nearly identical across circulation groups. Thus, the results here point only to differences in degree. For example, while editors at larger papers felt appreciation of newspaper history was more important than editors at small and medium papers did, this characteristic nonetheless was ranked last by larger papers as well as medium and small. It was ranked the lowest priority for large papers, but it was

rated higher at larger papers than at medium and small papers. Similarly, a solid sense of news judgment was ranked first by all newspaper circulation groups, but was rated higher by the medium papers than by the larger and smaller papers.

The results here, then, demonstrate strikingly similar results across all of the questions in our survey. Page designers had similar levels of experience at large, medium and small papers, and had similar levels of experience in comparison to copy desk chiefs and the typical copy editors. The large, medium and small papers also ranked very similarly the characteristics that are important for page designers to possess. The only statistically significant differences found here deal with ratings of how important these characteristics are. Larger papers typically rated knowledge unique to page design -- such as design techniques and pagination experience -- higher than other newspapers. Smaller papers typically rated general newspaper knowledge -- such as solid news judgment -- higher.

The results here, then, give mixed messages about the direction journalism education should take in preparing students for jobs in design. News judgment, while addressed in many journalism classes, generally comes from experience in the newsroom, not from lectures in a classroom. Yet editors ranked solid sense of news judgment as the most important characteristics that page designers need to possess. Newspaper history and liberal arts education, areas that traditionally have been addressed in the classroom, are much less important for newspaper editors, according to the results of this survey.

In addition, while the editors in our survey ranked knowledge of complex computer software and experience with pagination systems relatively low, they continue to require these types of skills in their new hires (see Russial, 1995). Thus, what editors say are important characteristics of designers and what they ultimately look for in their employees are two different things.

As page design continues to increase in importance in the nation's newsrooms, further examinations of the journalists responsible for this important job are essential. In addition, future research should investigate whether university programs are responding to the increased emphasis on design by incorporating classes that deal with visual aspects of the newspaper -- from design to graphics and visual communication.

Page design is crucial in attracting readers to a newspaper's contents. The role the designer plays in the overall operation of the nation's newsrooms, then, appears to be a fruitful area for future research.

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Table 1. Means and Analysis of Variance results for the three newspaper circulation groups on years of experience of copy desk employees. (N=227)

	Small	Medium	Large	F-score	P-level
Page 1 designer	12.02	11.72	13.10	0.79	.45
Copy desk chief	11.66	12.28	14.67	2.20	.11
Typical copy editor	9.02	7.32	8.77	1.37	.26
Difference in years of experience between designer and copy desk chief	0.60	-0.99	-1.57	0.93	.40
Difference in years of experience between designer and typical copy editor	2.80	4.10	3.90	0.53	.59

Table 2. Means, rankings and Analysis of Variance results for the three newspaper circulation groups on the characteristics that editors would be looking for in their page designers. (N=227)

	Small	Medium	Large	F-score	P-level
Solid sense of news judgment	4.63 # 1	4.84 # 1	4.75 # 1	3.01	.05
Knowledge of page design techniques	4.34 # 3	4.58 # 2	4.74 # 2	8.49	.000
Knowledge of grammar/style	4.61 # 2	4.56 # 3	4.36 # 3	2.85	.06
Experience with pagination	3.25 # 4	3.85 # 4	3.88 # 4	5.56	.004
Liberal arts education	3.18 # 5	3.36 # 5	3.45 # 5	1.06	.35
Knowledge of complex computer software	3.07 # 6	2.99 # 6	3.22 # 6	1.20	.30
Appreciation of newspaper history	2.81 # 7	2.68 # 7	3.18 # 7	4.78	.009

**Title: Patterned Image of the Homeless: Discourse Analysis of Television
News Narrative**

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Patterned Image of the Homeless: Discourse Analysis of Television News Narrative

ABSTRACT

The present study analyzes the television evening news coverage of the issue of "homelessness" during the period of 1985-1991. The discourse dimension of the sampled television news narrative is examined by identifying and examining semiotic modes of expression in television narrative such as camera work, sound, editing, etc. The following questions are explored: In what direction does the narrator orient the story as a whole? How is this question related to the whole point of view of the narrative, and what kinds of signifying mechanisms and devices are particularly used? Also, in this part of the analysis, the role of the anchorperson as a super-ordinal narrator and its relationship to the story dimension of narrative in particular is examined. On the "discourse" dimension, the research findings show that 25 sample news stories tend to share a somewhat fixed pattern in their making semiotic use of various audio-visual elements on the whole.

In the past decade, no single subject has been put under such a microscopic examination like the issue of homelessness (Snow, et. al., 1994, p. 461). From an emotional "letter to the editor" to a systematic scientific research, the issue has touched virtually every sectors of America. The image of the homeless, however, has not been entirely accurate. They have been portrayed as drunk, stoned, crazy, sick, and drug abusers by media and researches (1994, p. 463). In addition, the coverage of the homeless by network television news is patterned and seasonal: (1) most stories on the homeless tend to be on during the Thanksgiving and winter seasons; (2) more than 70 % of stories from NBC, ABC, and CBS, for example, were broadcasted during the winter season (December thru February, 1985-1994); (3) twelve (out of 19 total) stories were about Thanksgiving meals for the homeless in 1993; (4) more than a half of homeless stories (13 out of 25 total) were aired during the month of January in 1994; (5) types of stories from 1994 are almost identical with those of 1986; and (6) the length of stories is getting shorter every year (Television News Index & Abstracts, 1985-1994).

While the flood of reports and commentaries tried to make people concerned about the issue, the habitual ways of representing the issue have failed to deal with the real solutions to the problems of homelessness. One of typical ways of portraying the issue is that the image of an individual with an unique circumstance is carefully chosen to illustrate the problem. The image of those individuals' primary "actions" captured by camera are mostly negative. This study is, however, neither to criticize the ethical problems or any particular ideologies of the contemporary journalists, nor to redefine what news is or should be. Instead it examines surface structure or discourse dimension to identify visual codes. In other words, it explicates the discourse

dimension of television news narrative by identifying and examining semiotic modes of expression in television narrative such as camera work, sound, editing, etc. The study mainly concerns the relationship between the major (framing) narrators as well as (embedded) story characters and the story being told in general, and how the framing narrators (the anchors and reporters) are presented. Also the credibility of television news narrative mostly depends on its two features embodied in narration, the visual representation of the story events and the display of news personnel. In order to achieve this task, this study also borrows basic ideas regarding sign systems from the theories of visual semiotics by Peirce (1931-1958), Eco (1976), Seiter (1987), Silverman (1983) and Metz (1974). It also analyzes the role of the anchorperson as a super-ordinal narrator.

Discourse Dimension of Television News Narrative

The study of discourse dimension examines the relationship between the visual/aural expression and the "orientation" or "point of view" of the narrative as a whole. Thus the study presumes that television news narrative is, above all, characterized by its mediatedness of stories by the presence of narrators, particularly, the anchor persons and reporters as well as various verbal and non-verbal sign systems such as screen, camera work, sound, graphic, editing, lighting, etc. The visual presentation which mostly consists of repetitious and patterned news-camera work in particular seems to function as a determining role in embodying a point of view in the television news narration. Although television's "institutional" relations require the news events to be narrated without adopting the point of view of any party or person, as Hartley and Montgomery (1985) argue, the news narration cannot escape the self-embedded effect of the visual codes of television narrative.

Due to these unavoidable restrictions resulting from its "formal" relations, "All shots have a point of view, whether it is *internally* motivated by the placing of a character, or *externally* motivated by the positioning of the imaginary observer (viewer)" (p. 246). Thus it is important to examine how television's repetitious and consistent visual representations (through its unique sign systems) of the homeless in more or less a fixed pattern lead to a production of stereotypical "interpretant" in the viewer's head. For example, as the viewer is consistently and repetitiously exposed to a typical portrayal of the homeless, say, wearing rags, unwashed, unshaven, digging in the trash cans, endlessly walking on the streets, sleeping in the public places, etc., his/her way of interpretation (that is, "interpretant") might tend to be fixed into a certain shape, putting aside other alternatives.

This is also true to the patterned displaying of such signs as camera work (angle, distance, orientation and movement), lighting, sound, etc., all of which make up of a part of the overall signifying system in television. The uses of patterned and familiar visual codes then, as Campbell and Reeves (1989) argue, help to transform "the troubling experiences" and threatening aspects of homeless into "familiar news packages and stories" (P. 39). Similarly, Penner and Penner (1994) found that comic stripes tend to neutralize homelessness as a normal urban characteristic and a part of a downtown scene, rather than a social problem. For the time being, it should be acknowledged that the observational visual categories and their definitions have been drawn from previous theories and research works in the area of television news analysis (Bentele, 1985; Hartley & Montgomery, 1985; Kervin, 1985; Tuchman, 1978) and from information which is already

available in the existing television production handbooks (primarily from Zettl, 1984).

Sample Selection

First of all, out of 22 "mini news-magazine" segments aired during the period between 1985 and 1991, 25 episodes were identified from Television News Index and Abstract. These 25 episodes then consisted of 15 by ABC, 8 by NBC and 2 by CBS. While only two CBS's episodes were sampled for the present study, this does not necessarily mean that CBS has been negligent in reporting the "homeless" stories. For, in the initial sample prior to its reduction to its manageable size for the present study, it was found that each of three networks aired an almost even amount of "homeless" news items: 116 by ABC, 118 by NBC and 124 by CBS for the total of 358. During the period of 1986 to 1991, the average number of stories was 50 per year. The period could be called as "golden age of homeless coverage" by three network. In the period between 1992 and 1994, however, the average number of stories was dropped to only 19. And the contents of more current news were similar with those of the sample period. The total length of the sample amounted to 106 min and 36 sec: 59 min and 7 sec by ABC (55%); 38 min and 2 sec by NBC (36%); 9 min and 27 sec by CBS (9%). The total number of "sequences" identified were 133, including 73 by ABC (55%), 49 by NBC (37%) and 11 by CBS (8%). The number of sequences for one episode ranged from 4 to 9. The total number of 1,216 "shots" were also distributed by similar rates for each network as in the case of "sequences:" 637 (52%) for ABC, 459 (38%) for NBC and 120 (10%) for CBS. These percentages being compared with those for the duration of the total episodes for each network, it can be argued that all three networks, on the whole, share the same pattern in "sequentializing" and

"making use of shots" for making up of news stories, since the percentages for the number of sequences and shots match very close to those for the duration of the whole episodes. Similarly, another shared pattern for all networks is seen in their use of sequence and shot durations. On average, ABC apportioned 48.6 sec for a sequence and 5.6 sec for a shot, NBC 46.6 sec and 5.0 sec, and CBS 51.5 sec and 4.7 sec respectively. In short, all three networks tended to share the same pattern in making use of sequences and shots in terms of number and duration.

Analysis of Discourse Dimension

Camera's distance, angle and character orientation can provide the newsmakers with semiotically significant tools in terms of their functions, which eventually contribute to construction of reality in a particular way. These are also important in their relation to the "orientation" of the narrative as a whole, insofar as they often play significant semiotic roles both on the metaphoric and metonymic dimensions by producing or transforming the meaning of a particular "event" into various shapes depending on the narrative's particular orientation.

Table 1 about here

For camera shot, first, the medium range shots (medium close-up and medium shot) were the most frequent for all three networks, amounting, in combination, almost up to 40% of the total. Secondly, long-shot and medium/extreme long-shot were found to have been used almost evenly for all networks. For all networks, extreme close-up shot was used the least often. In the case of CBS in particular, only 1 out of 114 shots was taken in this range. According to Table 1, however, medium long-shot, long-shot and

extreme long-shot combined were used much more frequently (more than 50% of the total) for the homeless, compared with other characters with an exception of police officers. On the other hand, the homeless were given, comparatively speaking, fewer chances for medium close-ups, the most optimum type of shot, which can be called the "anchor" shot (in fact, the anchors were seen in this framing about in 74% of the total cases). The optimum framing of the reporter facing the camera at a mid-shot range sharply contrasts to the background scene (behind the reporter) which provides a long-shot of the homeless people with their backs to the camera in low-angle.

All of these discourse routines of "nomination" (the reporter), "unnomination" (the homeless) and considerable camera work turn out to be endowing the "textual" reality constructed by a "framing" narrator (the reporter) with more of a quality of neutrality, factuality and authority. It is not to generalize something from these numbers, rather it can be roughly suspected that the homeless people along with police officers might have been portrayed not as autonomous individuals, but rather as "collectives" more often than other characters.

For camera angle, the normal standard (eye-level) angle shots were shared as the dominant style by all three networks, as their frequency averaged 82% of the total. Low angle shots were used the least often (about 4%). In regarding to the distributions of high angle shots (Table 2), however, the homeless's 17% sharply contrasts to the other cases which range about 6% to 9%. Considering the negative effect of high angle shot in general, this figure may suggest that the homeless were given relatively more unfavorable images than the other characters. A high angle shot in general, tends to have

an negative effect by which the authority and significance of the subject are diminished since the subject tends to be "looked down upon" by the viewer in an emotional sense (DeNitto, 1985, p. 22).

Table 2 About Here

A story (12/06/88. ABC, 5:13 minutes) on a "grandfather's" intention to help his grandson's family and of his financial incapability to do such is well dramatized by a series of shots. The grandfather's voice-over on the scene of his grandsons is just enough to appeal to the viewer's feeling of "sympathy" in the humanitarian sense. Visually speaking, the high-angle shots of Mayhew's (the grandson) homeless family with the alternative use of close-ups and long-range shots are also semiotically effective in evoking the emotional movement on the viewer's side. For this kind of visual presentation tends to appeal to our sympathetic feelings towards the characters, while reinforcing the quality of inferiority on them. In brief, the frequent use of close-up shots and (extreme) long-shots for the homeless subjects contrasts to the optimum shots of "us" (the reporter or the professional), and thus tends to create an inferior quality for the homeless's overall image or just to reaffirm how they are "different" from ordinary people. This unfavorable effect is also true in the case of a character orientation to the camera for the homeless people. As seen in the comparison of Table 3, the homeless were more often portrayed in profile and less in facing-the-camera position than other characters.

Table 3 About Here

Along with these relatively negative images given by camera work when compared to other characters, the homeless also received unfavorable images

in terms of character's primary "actions" captured by camera. As Table 4 shows what the characters were seen doing the most in individual shots, it may be suspected that in more than half of the total shots (about 52% in combination of 7 categories), the homeless were seen mostly in negative image categories such as walking (without any particular destination), sleeping, eating, digging in trash cans, weird body movements or gestures, panhandling, prostituting, and the most often, standing around on the streets without having a particular reason to do so. The authors believe that these features are semiotically important for more comprehensive narrative studies since their repetitious presentations gradually accumulate their metonymic effects both at the intra- and inter-episodical levels.

*** Table 4 About Here***

Dealing with findings about the basic characteristics of signification on the discourse dimension, the discussion so far has been focused mostly on the homeless's side, how they were treated in terms of camera work and their primary actional appearances. In the following, the study describes how two major "framing" narrators in the television news narrative (with emphasis on the framing of the anchorperson) were featured in their relation to the viewer side. As already discussed, the television anchor person, mainly due to his positional advantages, always occupies a position of top authority compared to other characters including the reporter. The anchor, simultaneously as an "extra-diegetic" and an "hetero-diegetic" narrator, is always seen to dominate the whole narrative practice by subjugating all the narrative elements, either verbal or visual, to his positional authority within a given framework. On occupying the most superior position of authority, objectivity and reliability, he/she was seen, across all the samples, solely

responsible for controlling and leading the flow of the narrative as a whole. This was possible in our sample partially because of his/her direct mode of address, which always maintained eye-contact with the viewer ("us"), and of the most positive camera work given to him. Above all, he/she was seen never leaving his/her studio desk, the headquarters of the narrative practice, which controlled all other elements in the narrative. He/she framed the topic, initiated the tension, drew the viewer's attention into the tense "reality," assigned the reporter and eased the tension by taking the viewer out of it after all.

In all sample stories, with the exception of one (NBC's "Special Segment" on December 5, 1986) in which the anchor also performed the role of field reporter, the reporter was assigned to perform both roles of "camera" and "framing" narrators, albeit at the secondary level. Unlike the anchor person, however, the reporter usually (not always) assumed two roles at the same time, one in terms of narrative level and the other in its relationship to the story. As a camera- and framing-narrator, he/she was virtually responsible for developing, elaborating and closing the story, although it was under the control of a given framework. While this task was mostly done by his/her voice-over narration on actuality sequences (the field reporting), it was sometimes managed through the direct mode of address to the viewer. However, the quality of his/her mode of direct address was a little different from the anchor's. For, unlike that the anchor's direct address was always made in the studio, the reporter's was always performed in actuality sequences, thus, being accompanied with the background scenes. Meanwhile, the reporter, often times, also took the role of character narrator, as he/she was engaged in the interviewing situations along with the "embedded"

characters in the actuality scenes. Of the 25 samples, 15 episodes were carried with the role of the reporter as an "character" narrator, either by the verbal or the visual. In 11 samples among these, in particular, a direct address mode of narration as well as voice-over technique was used. In any case, the reporter did not lose his/her authority as a "framing" narrator even when he/she was actually engaged in the story itself. In short, the anchor and the reporter as "framing" narrators were featured solely responsible to have the narrative flow within a given framework towards a certain "point of view," while the other characters including such interviewees as professionals and ordinary people as well as the homeless were seen serving as a collective lubricant role for the smooth flow of narrative.

Discussion and Conclusion

This study has examined the network's use of the semiotic elements on the discourse dimension in general in search of their patterned use in representing the characters involved in the news stories. The findings suggested that there existed this "patterned" use of various semiotic elements such as setting, various camera work, lighting, sound effects and portrayal of characters' primary actions. This patterned way of visual encoding above all, tended to produce two types of representation of characters; Some characters were featured as individual "persons" and some as a "collective" mass. On the whole, both homeless characters and ordinary people tended to be portrayed not as autonomous individual "persons," but as a "collective" group at the non-personal level, compared with other characters. This is partially perceptible in network's relatively frequent use of long-range shots for these two groups of characters, whereas the medium-range shots were mostly reserved for those characters whose "authoritative" positional

qualities tended to be socially recognized such as professional homeless advocates, doctors, lawyers and ministers. With regard to "depersonalizing" effect of extreme long-range shots in particular, Tuchman (1978) argues that "Public distance [corresponds to extreme long-distance shot range] is all but forbidden in recording events involving "individuals," [thus] depersonalizes, and is used only to show masses, not individuals" (p. 119). Moreover, it was relatively frequent that the homeless were seen on the streets, mostly standing around, walking up and down, sleeping and so forth, while the authoritative professionals were shown for interview in their offices. The silent appearances of the homeless without proper visual "nomination" or "accessed" voices also contributed to the construction of their image as a "collective" mass.

On the other hand, the use of high camera angle more frequently for the homeless than for the other characters suggested that the homeless were often seen as "emotion-oriented" characters rather than "rationality-oriented" ones. In addition, while it was not greatly different that most characters, except the anchor/reporter, were given close-range shots, the homeless were framed the least often in the most optimum, medium close-ups. This again tended to reinforce the image of the homeless as lacking the quality of "rationality" or "neutrality." Even in the case of close-ups, the effects were different depending on who said what. In other words, it should be differentiated between the effect of close-ups of the homeless people and that of the other characters in terms of their virtual image constructions. To illustrate, in most cases, what was said by the professional characters sounded like that it was merely delivering the general, public opinion and thus seemed to represent the society in general. In other words, what they were

saying sounded like that their opinions were not their own but the general public's, as if they had been based on the position of "neutrality" and "rationality." On the other hand, what we heard from the homeless characters tended to be confined within their personal emotional reactions to their own everyday experiences and hardships, that is, those "immediate effects" of the fact of "being homeless." In this pattern of ironical representation, anyway, the "emotionalizing" effect did not seem to raise the homeless's "individuality" as an autonomous human quality at all, but tended to function only as representing them as a "group" on the margin of mainstream society. To quote Tuchman (1978) again, "These displays do not function as an attribute of the individual. They are social indicators of the plight of a group, whether the group is parents with incurably ill children, wives of soldiers missing in action, or families made homeless by a natural disaster" (p. 123).

In contrast to all the "embedded" character narrators, in the meantime, the anchors and the reporters as "framing" narrators were shot in the most optimum modes of presentation such as medium-distance, standard eye-level angle, facing-the-camera orientation, plain backing in the studio (the anchor in particular), good lighting and decent formal dress. Their direct eye-contact mode of address along with the optimal visual framing contributed to establishing their positional quality of intimacy, neutrality, objectivity, credibility and authoritativeness. As Masterman (1985) quotes Hood, "All these persons have one thing in common. They are there to give us information which we are asked to assume is accurate..., unbiased and authoritative....They...can be described...as 'bearers of truth'" (p. 172). As such "bearers of truth," they were seen as playing the role of "impersonal" (Kervin,

1985, p. 243) objective information agent who simply delivers the viewer the "truth" as it is. As Hartley (1982, p. 110) has suggested, their "institutional" appearances and voices were the only ones which were so fully "naturalized" that their constructed and transparent-looking nature seemed hard to resist. Moreover, this impersonal, objective quality of their voices was again supported by the anchor's and mostly reporter's "voice-over" narration on actuality sequences as to the homeless characters and also by the use of various graphical presentations of related information. For example, the shape of one of ABC's computer-graphical devices for information presentation, so-called, "FACT FILE" (February 4, 1987), resembled that of an actual paper file folder. While it was used for presenting statistical data about the demography of the homeless and other related information, it certainly contributed to increasing the "realistic" quality of news-team's own account of the "homelessness" phenomena.

The proper understanding of the visual then requires studying how various signs as a total signifying system work in the narrative. To accomplish this task, it is required in the first place to examine some basic structural coding systems such as camera distance, angle and orientation to characters, sound and editing in their relations to the visual presentation of the characters. It is assumed, however, that the overall statistics regarding these semiotic elements can only give us a general view about how they contribute to constructing a particular version of reality. This study does not explain in detail how various structural and cultural elements are selected and chained together in constructing the specific meaning of the narrative. In this respect, it is meaningful that Fiske (1991) , partially relying on the participant observation method, has attempted to relate his interpretation of

material conditions of homelessness with that of the homeless's cultural practice of "watching television" (specifically, a film *Die Hard*). Fiske contends that "the cultural analysis studies instances of culture in order to understand both the system that structures 'the whole way of life' and the ways of living that people devise within it" (p. 469).

Finally, this study is a mere subjective interpretive approach to a complete reading of television news' visual codes in an attempt to understand the structural encoding principles which have been consciously or unconsciously practiced in the television journalist's news making process. The nature of this study then partly resembles, what Geertz (1973) calls, an "interpretive" study, which has its unique characteristics as Geertz claims in the following:

it is interpretive; what it is interpretive of is the flow of social discourse; and the interpreting involved consists in trying to rescue the "said" of such discourse from its perishing occasions and fix it in perusable terms....But there is, in addition, a fourth characteristic...: it is microscopic (p. 21).

Table 1
Distance from Subjects to Camera (by Subject Types*)
(In percent of total number of appearances)

Subject	ECU	CU	MCU	MS	MLS	LS	ELS	Total	(n)
Anch			74.2	19.4	3.2	3.2		100.0	(62)
Rep			32.7	40.4	17.3	1.9	7.7	100.0	(52)
HL	4.4	13.6	11.7	18.8	16.5	17.5	17.5	100.0	(880)
HA	1.6	8.1	40.3	17.7	19.4	3.2	9.7	100.0	(62)
OR	1.2	15.3	14.1	25.9	15.3	11.8	16.5	100.1	(85)
PR	8.1	24.2	33.9	17.7	11.3	3.2	1.6	100.0	(62)
PL	10.0			10.0	30.0	30.0	20.0	100.0	(10)
Total (n)	(47)	(153)	(224)	(243)	(191)	(174)	(181)		(1,213)

Note. When the camera zoomed, panned or tracked, the beginning and the ending distances were both included. Anch means the anchor; Rep, the reporter; HL, the homeless; HA, homeless advocate including such characters as shelter directors and workers, characters from "homeless coalitions", social workers, etc.; OR, the ordinary public; PR, professionals such as doctors, lawyers, psychiatrists, ministers, public service personnel, etc.; PL, police officers. This note must be applied to all of the following Tables. ECU(extreme close up); CU(close up); MCU(medium close up); MS(medium shot); MLS(medium long shot); LS(long shot); ELS(extreme long shot).

Table 2
 Camera Angle to Subjects (by Subject Types)
 (In percent of total number of appearances)

Subject	HA	SA	LA	Total (n)
Anch		100.0		100.0 (46)
Rep	8.9	91.1		100.0 (45)
HL	17.0	78.2	4.8	100.0 (812)
HA	8.2	86.9	5.0	100.1 (61)
OR	6.7	89.5	3.8	100.0 (105)
PR	6.5	92.0	1.6	100.1 (62)
PL		100.0		100.0 (10)
Total (n)	(158)	(936)	(47)	(1,141)

Note. When a shot contained more than one angle due to camera's movement, both angles were included.
 HA(high angle shot); SA(standard angle shot or eye-level); LA(low angle shot).

Table 3
Subjects's Orientation to Camera (by Subject Types)
(In percent of total number of appearances)

Subject	FC	PF	BC	X*	Total (n)
Anch	87.7	5.3	7.0		100.0 (57)
Rep	62.2	2.2	26.7	8.9	100.0 (45)
HL	45.3	15.5	8.1	31.0	99.9 (812)
HA	62.9	6.5	6.5	24.2	100.1 (62)
OR	59.0	8.4	1.2	31.3	99.9 (83)
PR	71.0	4.8	1.6	22.6	100.0 (62)
PL	20.0	10.0		70.0	100.0 (10)
Total (n)	(580)	(145)	(88)	(318)	(1,131)

Note. When camera holds a group shot of lots of people, the shot was not included because it was regarded not significant for the purpose of the study.

*When a character was seen from more than three designed orientations due to his/her movement/action, it was recorded as X.

Table 4
Subjects's Primary Actions*
(In percent of total number of appearances)

Subject								
Action	Anch	Rep	HL	HA	OR	PR	PL	Total (n)
DA	76.8	46.5						(63)
ST			21.7		2.4			(179)
WA			7.5		6.1			(66)
SL			7.6					(62)
EA			5.5					(45)
DI			0.5					(4)
PA			6.2					(51)
WB			3.1					(25)
PL	5.4		27.9	41.7	50.0	37.1	90.0	(329)
IN	17.9	53.5	16.9	58.3	41.5	62.9	10.0	(280)
OT			3.2					(26)
Total (n)	100.1 (56)	100.0 (43)	100.1 (817)	100.0 (60)	100.0 (82)	100.0 (62)	100.0 (10)	(1,130)

Note. When a two- or three-shot contained more than one actions, all of these were included. If a shot contained too many people, a shot of crowds in the bus terminal, for example, it was not counted since it was considered not significant for the purpose of the present study.

*DA means direct address to camera; ST, such unfavorable actions as standing/sitting around, looking around, etc. without doing productive things; WA, walking; SL, sleeping; EA, eating; DI, digging in the trash can; PA, disordering actions such as panhandling, drug-dealing, prostitution, involvement in arrest, policing, and other unfavorable events; WB, weird behaviors typical of mental patients; PL, actions including positive or normal actions such as reading, having conversation, playing, singing, etc.; IN, involvement in interview situation; OT, others.

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Navigating the Digital Universe: the use of space in the design of multimedia

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Abstract:

Multimedia presentations combine multiple media formats into an environment through which the user must navigate. This environment can be described as three-dimensional form with many of the attributes of architectural and sculptural space. The multimedia designer can anticipate user movement through this spatial environment by understanding the physical, conceptual, perceptual and behavioral aspects of the design space. The primary focus of this paper is to examine the processes and problems of user navigation and orientation in multimedia with particular emphasis on the relationship of the user to the spatial environment. An approach to the process of designing multimedia is suggested.

Navigating the Digital Universe: the use of space in the design of multimedia

Multimedia combines a variety of media formats: text, image, sound and movement into a dynamic environment that allows users to select the level of interaction and to make active decisions about how they access the content.¹ The multimedia designer must create an experience that anticipates and allows the user's approach and movement through the presentation, as well as the user's exit. The designer can offer navigational cues, but unlike the sequential ordering that serves as the underpinning of traditional media (print and film), multimedia offers multiple avenues through the material. These avenues through multimedia are digital rather than physical, yet the process of orientation and navigation have parallels to three-dimensional space. If we accept the notion that multimedia products can be described as three-dimensional form, the process of design must incorporate an appreciation for these spatial requirements. This paper will examine some of the processes and problems of navigation and orientation in multimedia by comparing the perception of architectural and sculptural space to that of the multimedia environment.

Space in multimedia

An understanding of the creation and organization of space can be helpful in the process of planning the multimedia information environment. Space in multimedia includes the space occupied by the elements that are part of the multimedia product as well as the space that surrounds the product. The parallel is the potential to view space as a

universe with discrete elements that fit within and function as complex systems. On the World Wide Web, this universe is open, although it may not be infinite, and the elements or sites are organized to be accessible as unique worlds with thoroughfares to other worlds. Users may have local, regional, global or cosmic experiences as they travel the Internet. Self-contained multimedia products such as CD-ROMs are spatially limited but no less complex because each format — text, video, audio, or graphic element — may be uniquely organized or arranged to interact with the other elements in the space. The space occupied by the elements and the space between the elements is navigable in many directions.

There is a tendency when designing for multimedia to think of the process as a hybrid-linear experience with a hierarchical structure that the designer can control. In spite of the potential to link from one idea to another, these links are often used as subsets within a dominant text,² much like footnotes within a research paper. Links may lead from primary topic to secondary topic and so on. Limitless layers of links are possible, but commonly these connections branch from one another in a hierarchy of importance or emphasis. This can be seen in World Wide Web sites that open with a home page and contain an index of icons that lead the user down a linear path of pages that are essentially documents dumped into digital form. The reader is forced to use the product in a directed way — sequentially. This method of information storage and retrieval is based on a two-dimensional tradition of text navigation that is dominated by the book and print media publishing. It is a century's old tradition of organizing information sequentially, and it assumes that the reader will navigate through this sequence from top to bottom or from beginning to end.

In the design of multimedia, there are multiple pieces of information that may be presented in a linear format as sections within the presentation. For example, a document may include pages of text, an author reading her poetry, a musician playing one of his compositions and then discussing it, or a video pop-out window that shows scenes from an event. All of these discrete elements are linear in their structure. They have a beginning,

middle, and end, and for the most part they require that the user navigate through the experience with reverence for this arrangement. The underlying organization of elements within the product may be linear but as soon as the user is invited to move among or between elements, this sequential, directive approach is given additional dimension.

In multimedia, it is the user's movement through the presentation and the user's experience with the content that is non-linear. Hypertext allows this alternative way of approaching beginnings and endings or entrances and exits from the multimedia product. It offers multiple possible sequences thus multiple potential beginnings and endings. The point at which the reader enters the text is a beginning and in hypertext that entrance may be anywhere, at any point within the structure.³

The prospect of arriving on the doorstep of a new structure and being presented with a maze of confusing paths in, around, or through is precisely the situation presented by many multimedia products. The ultimate responsibility of the designer is to create a navigable environment with interfaces that help orient the user. One strategy for addressing the challenge of designing navigable multimedia space is to view the environment as architectural or sculptural. Architectural space has both pragmatic and expressive intent. It is planned with the user in mind and functions in particularly well-defined ways to offer shelter or utility. The architect may have had a particular expressive goal that is revealed through the design and this expressive intent may be uniquely interpreted by the viewer but it is not of paramount importance. Function is the primary purpose of architectural space. Sculptural space, while also three-dimensional, is created with expressive intent — to reveal the unique vision of the artist. Sculpture may not be functional but is always expressive in intent. Architecture may be expressive and is always functional in intent.

Further, space that is modulated to allow the viewer to observe it but not to inhabit it is sculptural. Space that is modulated to allow the viewer to enter and inhabit it is

architectural. "Clearly, these categories overlap a great deal: architecture is sculptural, and sculpture can be inhabited."⁴

Multimedia may have both architectural and sculptural space resident within a single product and the designer must be aware of both the expressive and functional intent while organizing the design space.

The designer as architect or sculptor

Our senses are affected by the creation of patterns and proportional relationships between shapes. Light, color and sound also influence our sensory experience. The architect manipulates space to influence the environment in which we live and through which we move. Architecture has been described as "the art into which we walk; it is the art that envelopes us."⁵ Mies van der Rohe described architecture as "the crystallization of its inner structure, the slow unfolding of form. That is the reason why technology and architecture are so closely related."⁶

To the architect, space is a functional design element that is as important to the success of the structure as every column, wall or window. The function of space can be described pragmatically, with a utilitarian view of the use or activity that will occur within a given space. Space can also be described for its circulatory function or its ability to direct or enhance movement from area to area. The function of space can also be symbolic or may be used to make a visible statement about its use. And finally, space can function psychologically to offer optimum satisfaction or to simply be pleasing.⁷

The organization of content within a multimedia product may be enhanced through an approach to the digital environment that actively anticipates the function of the space occupied by the structure. From this perspective, the multimedia designer must anticipate the purpose of the content and the level of interaction that is necessary. The circulatory function of multimedia includes the ease with which the user can move and the visual guideposts that clarify the access routes. Psychologically, a well designed multimedia experience leaves the user anticipating a return trip.

The design produced by the architect influences the user's movement through space on many levels. The architect manipulates physical space which is bounded by walls, floor, and ceiling; perceptual space and the sense of scale, perspective and distance that is seen by the viewer; conceptual space that is part of memory and includes the mental maps that we carry around in our heads; and finally, behavioral space which includes the way we actually move through and use an environment.⁸

The experience of manipulating space to create an environment through which others move is a fundamental concern for the multimedia designer. The environment is constructed of bits of information and is thus binary rather than physical. Nonetheless, multimedia is space that we enter. If it is space on the Internet, it is open and vast. If it is space on a portable storage device such as a CD-ROM it is limited in scale but may be open in structure. The structure of the space is perceptual as opposed to the bricks and mortar of a physical structure. And yet, the experience of moving through a constructed environment is similar.

Mitchell argues that the structure of space on the Internet has many of the symbolic and social characteristics of physical space but that the restrictions of architectural form can be overcome. Spatial cities, he says, condense human activity to promote interaction but there is also an element of control introduced as access is organized. Districts and neighborhoods are created to define space.

For the inhabitants, crossing a threshold and entering a defined place — as an owner, guest, visitor, tourist, trespasser, intruder, or invader — is a symbolically, socially, and legally freighted act. There is always a big difference between being a local and being an alien, being on your own turf and being on somebody else's, enjoying your privacy and appearing in public, feeling at home and knowing that you are out of place. So it is on the Net, as well, but the game gets some new rules; structures of access and exclusion are reconstrued in entirely nonarchitectural terms (if we continue to define architecture as materially constructed form), and you enter and exit places not by physical travel, but by simply establishing and breaking logical links.⁹

The architecture of multimedia space is not simply materially constructed form, although there are comparisons that can be made. Rather, multimedia space is formally organized by the designer to allow movement through and within and between sections. The structure is most effectively created as a format for guiding movement rather than a form for controlling movement. Movement is no longer bounded by the structure, rather it is guided. The ability to link from one section to another or to simply enter or exit a structure at any point becomes equivalent to walking through walls for the user.

The design of a building or structure relies on the thoughtful consideration of human behavior. Ultimately, a building is constructed for human use and thus movement through it, around it, and within it is of primary importance. The architect can create an environment that employs space in a directional way. For example, a Gothic cathedral in which the emphatic axis directs movement toward a single focus — the altar. The architect may also elect to create an environment of non-directional space in which there is no single or obvious path through a building. Rather, there are a variety of paths to choose from, each offering a unique relationship to the space created.¹⁰

The designer of multimedia must be similarly concerned with the user's movement through the material. In a multimedia environment there are multiple windows, doors, and hallways through content. The designer's challenge is to use directional and non-directional space to create multiple paths through a coherent, navigable garden of content rather than a labyrinth of dark, empty passageways and blind alleys.

Physical Space. The constraints of technology allow limited influences on the part of the designer over physical space, which might be conceived of as the CD, the user's computer, or the network. Physical space may also include access speed, storage limitations and the size of the digital presentation. These technology limitations are generally unavoidable and require that the designer simply make intelligent decisions that don't impede user access. In fact, the multimedia designer has the greatest influence over the realms of perceptual, behavioral and conceptual space.

Perceptual Space. In the design of multimedia, perceptual space includes the elements visible on the user's screen and the environment that is created through their arrangement. The choice and arrangement of visual elements such as type, color, pattern, and image as well as the designer's use of sound, movement and time are important elements in multimedia design. The designer has control over the assembly of these elements and is charged with creating a perceptual space that is articulate and that adds to the communication goals of the presentation. If there is a sense of depth or perspective visible or if the passage of time is evident in the presentation, it is perceptual space that has been influenced by the designer.

Three-dimensional space is described as being boundless or limitless in all directions. Perception of three-dimensional space is influenced by our ability to perceive depth and volume. The physiological properties of binocular vision, seeing with two eyes, gives us an ability to discriminate between the relative depths or forms within a three-dimensional visual field. This allows us to imagine distance and to gauge scale, shape and size.¹¹

Our understanding of three-dimensional space is also psychological because perception is a function of our ability to comprehend and assimilate what we are seeing. H. L. F. Helmholtz developed cue theory which suggests that before the mind can know and interpret sensory information, it must participate in sensory events that form the basis for interpretation.¹² In other words, once spatial cues are learned through experience, our perception of space becomes relatively simple and our response to it is automatic. Cumulative sensory experience builds a foundation from which we perceive.

Our perception of space in multimedia is both a physiological function of vision and a learned phenomenon that is all the more complex because the digital data that makes up the multimedia product has no real volume or scale. It is the orientation, organization and design of content that can be approached as a three-dimensional problem.

The hierarchic structure of hypertext is extended in multimedia space to include concern for layers, the distance and paths from one link to another, and the introduction of movement and time. In hypermedia, each user decision offers the potential to move from one-dimensional to multi-dimensional. "...a word in text can open to a hologram, a point within the hologram can open to an animation, a frame in the animation can return to a text."¹³ We can think of space in this context as "information space" with the actual elements and the space within which they reside connected. The designer defines how the information is organized within the space but the user defines how the space functions, or is perceived, or conceptualized. The user may behave in the space in a variety of ways.

The designer must consider the entire multimedia document as a potential entry to the content. If the multimedia document can be approached and entered from any point in the presentation, the design process must include attention to the whole as well as the individual elements within the presentation.

Many multimedia products use familiar spatial metaphors to help the user find her place. For example, the computer desktop with file folders, trash cans and clipboards that serve to connect the user to their physical counterparts. Apple Computer's E-World village is a spatial metaphor that offers the user a familiar way to navigate from one content area to another. In each case, the spatial environment has been organized to give the user a sense of the whole area.

Behavioral space in multimedia includes the way in which the user approaches the material and navigates through it. The user interacts with the multimedia environment using a variety of entry points and traverses the space through a variety of paths.

The multimedia designer builds the access routes between topics and establishes the signage and tools that are necessary to help the user navigate the information in a coherent way. A well-developed approach to navigation design minimizes travel by creating simple

paths between points, minimizes complexity by creating a hierarchy with a minimum of levels, and minimizes redundancy to avoid creating multiple paths to the same place.

There are two levels of access that concern the designer; movement within the presentation and movement that takes the user away from the presentation. In the first case, the designer must create a sense of continuity and a clear sense of direction within the document. This is a matter of establishing a visual identity with readily understood icons, landmarks, guides, and an understructure that is based on "user-logic" — literally, the way in which the user approaches the product and the way in which the user navigates through the information. User-logic often differs from the intuition or judgment of the designer. One approach to incorporating user-logic into the multimedia product is to practice collaborative or participatory design, bringing the end user into the development process as an active contributor.

Sun Microsystems describes one such approach to evaluating user comprehension of the icons developed for their Web site (www.sun/sun-on-net/videsign/sunweb/). The end user was involved in each step of the design process and consequently was able to eliminate any ambiguity concerning how they would interact with the final product. This process allowed Sun to create an icon system that is intuitive and to organize the site in such a way that user access is assured.

To influence access routes that take the user through and away from the multimedia presentation, the designer needs to have created an enticing environment that leaves a positive impression with the user. This concern for the aesthetic appeal of a presentation is directed less toward user-logic and more toward creating a pleasing memory and an experience that the user will be likely to repeat.

The designer also needs to anticipate behavioral differences among users. Users move through the presentation at their own pace, making selections along the way that determine how they will behave in the environment that has been created. The ability of the user to define the viewing experience has parallels to that of sculpture when the viewer is

able to select the angle of view, the time of view, range of view, etc. The user chooses the sequence, depth and duration of the experience and consequently the nature of access to the space. The user may be a relatively passive viewer or an active visitor who participates or interacts with the object. In any event, each user brings a unique set of goals, ideas or information processing criteria to the process.

The access to space is one of the key ingredients in creating interactivity. What is unique about multimedia and the Internet is that both access and navigation are outside the domain of the designer once the product is "out there." Accessibility is in the hands of the user and navigation choices are sometimes arbitrary, sometimes purposeful, but seldom linear.

In effect, interactivity is multimedia's reason for being. It allows the user to create links between different media types and integrate them into a uniform multimedia document, program, or presentation. It is critical to understand that the links to the media and the information carried by the media are not fused and permanent. They are dynamic and active."¹⁴

The designer has created an environment of communication that is multi-dimensional and that is responsive to the influence of the audience. The designer relinquishes control once the environment is made available to others. The user decides how to enter the product, approach the content, assimilate the information, and engage in highlighted details.

Further, we can think of the structure of space within multimedia as dynamic and evolving with movable walls, permeable fences, flexible hallways and scalable sections. The designer can adapt and modify the structure without total disassembly. It is an environment that can respond to the actions of the audience.

Conceptual space in multimedia is another story entirely. It relies on the internal compass, or spatial memory of the designer and user. Conceptual space is our sense of how to move, or of boundaries, and direction. It is whether we are able to conceive of the computer screen as having multiple levels or layers. Conceptual space is an experience rather than a construction. The designer and each user of the product may have

unique senses of conceptual space. For example, it might be perfectly understandable for one user to envision a hypertext document as a three-dimensional form that resembles a Calder mobile, while another user envisions the same document as a two-dimensional diagram or flow chart.

Memory plays an important role in our conceptual understanding of space in multimedia. We rely on spatial memory to get from one point to another and back again. We rely on spatial memory to create mental maps that allow us to repeat an action or retrace our steps. The constraints of short- and long-term memory are important concerns for the multimedia designer.

Short-term memory is accessed quickly but decays rapidly. We use it as a "scratch pad" to store information that will be used fleetingly. We tend to seek closure and to group items or events stored in short-term memory. If we are interrupted while processing information in short-term memory, we easily lose our place. Another hallmark of short-term memory is the "recency effect" meaning that we tend to remember best the words or images that are presented last.¹⁵ Short-term memory is integral to the user's successful navigation in multimedia design space, particularly as the user accesses new presentations.

The multimedia designer needs to use a variety of tools to help the user remember where they are in the design space. These tools include pictographic icons that remind the user where they are and how to get back, color references that connect to sections or areas of the design space, a coherent use of typography, movement, sound, and organization that augments the message and reinforces the user's progression through the design space.

Long-term memory has relatively slower access time but allows the user to store factual, experiential knowledge in unlimited amounts.¹⁶ We access long-term memory episodically, with memories stored in serial form, or semantically, as associations or representations of the relationships between or among things.¹⁷

For the multimedia designer, the process of storing information in long-term memory suggests that a clear understanding of the nature of the information be developed

before a design approach is initiated. For example, information that is likely to be remembered as a sequence of events should be stored with an appreciation for the structure or hierarchy of information. This will result in a fairly linear approach to the use of space. Information that is likely to be remembered as an interpretation or impression can be delivered in a structure that is less rigid. Space, in this case, can be expansive with links that open the user to new possibilities rather than directing the user to a conclusion.

A sense of disorientation occurs when users seek information and subsequently lose their sense of direction within the information space. If the user is concerned with how to navigate the system to reach the information, attention is diverted¹⁸ and the process of moving has become more consuming than the potential of the destination. Imagine being so concerned about your ability to walk down a corridor successfully that you fail to notice \$1000 bills lining the walls. This is one of the results of disorientation.

Disorientation can occur in multimedia when the links dead-end or are irrelevant. It can also result when the tools for navigation are inappropriate or lacking. If users have a difficult time retracing the route taken to find information, frustration results. Interface design is an important part of connecting the user with the information and very often this ingredient is overlooked or inadequate. For most users a clear path to a primary index or a diagram of the space is important in creating navigable information space. This can be frequent connections to a homepage or section pages with reliable indexes.

The multimedia designer is charged with considering both user movement through digital space and the organization and presentation of form within that space. The challenge is to anticipate not only the development of the multimedia product but its place in a multidimensional environment and the ways that the user will interact with the product. A careful consideration of physical, perceptual, conceptual and behavioral space is a sound first step in the process of creating a navigable digital universe.

The nature of space in multimedia

A framework for examining the spatial environment in multimedia and the design considerations that must be addressed to ensure effective navigation:

	Defining the nature of the space	Design considerations
Physical space	The size and shape of the space occupied by the multimedia product	Size of the presentation and the design elements that are included, access speed, storage limitations
Perceptual space	Our sense of the scale, distance or proportion within the multimedia product	Use of perspective, perception of dimension, time and movement, constraints of vision and information processing
Conceptual space	The way in which the user understands or remembers the design space	Short term memory Long term memory
Behavioral space	The way the user actually moves through, in, or around the space	The use of directional and non-directional space, the design of icons and directional graphics, access and the level of interactivity

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- ¹ Randy Haykin, senior editor. Demystifying Multimedia: a guide for multimedia developers from Apple Computers, Inc., San Francisco, CA: Vivid Publishing, 1993, p. 3.
- ² The discussion of the text as it is used in this context is not limited to a typographic product. Rather, it assumes that the multimedia product is based upon a traditional, sequential narrative that employs the qualities of non-linear organization such as that used in hypertext.
- ³ Landow, George P. Hypertext: the convergence of contemporary critical theory and technology. (Baltimore, MD: Johns Hopkins University Press, 1992) p. 57.
- ⁴ Novak, Marcos. "Liquid Architectures in Cyberspace," Cyberspace: First Steps, ed. Michael Benedict (Cambridge, MA: MIT Press, 1992) p. 243.
- ⁵ Roth, Leland M. Understanding Architecture: Its Elements, History and Meaning. (NY: Harper Collins Publishers, Inc., 1993) p. 45.
- ⁶ Roth, p. 19.
- ⁷ Roth, p. 12.
- ⁸ Roth, p. 45.
- ⁹ Mitchell, William J. City of Bits: Space, Place and the Infobahn. (Cambridge, MA: MIT Press, 1995) p. 21.
- ¹⁰ Roth, p. 51.
- ¹¹ Wallschlaeger, Charles and Cynthia Busic-Snyder. Basic Visual Concepts and Principles for Artists, Architects and Designers. (Dubuque, IA: Wm. C. Brown Publishers, 1992) p. 307.
- ¹² Wallschlaeger, et al, p. 306.
- ¹³ Novak, p. 230.
- ¹⁴ Lindstrom, Robert L. The Business Week Guide to Multimedia Presentations. (Berkeley, CA: Osborne McGraw-Hill, 1994) p. 173.
- ¹⁵ Dix, Alan, Janet Finlay, Gregory Aboud, and Russell Beale. Human-Computer Interaction. (Englewood, Cliffs, NJ: Prentice Hall, 1993) p. 27.
- ¹⁶ Dix, et al, p. 28.
- ¹⁷ Dix, et al, p. 29.
- ¹⁸ Borman, Hester and S.H. von Solms. The Electronic Library, Volume 11, No 4/5, August/October 1993, p. 263.

African American Pictorial Coverage in Four U.S. Newspapers

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ABSTRACT

In a study that analyzed more than 40,000 photographs in four U.S. newspapers, among the findings was that coverage of African Americans had increased while stereotypical coverage had generally decreased compared with a similar study of the same newspapers. It is concluded that journalists need to make continued strides to represent visually all members within a publication's community.

NOTE: This study is available on the World Wide Web at: <http://www5.fullerton.edu/les/aastudy.html>

One of the recommendations at the conclusion of Lester's content analysis of pictorial coverage of African Americans in four U.S. newspapers that covered a time-span from 1937 until 1990 was:

Researchers should continue to monitor the coverage of these large newspapers to evaluate continued progress....

With that challenge in mind, the present study looks at the African American photo coverage for 1995 for the same newspapers used in the previous study by Lester. Much news involving African Americans has occurred since 1990 to make one assume that African American coverage has increased from previous years—the beating of Rodney King, the subsequent trial, and the civil unrest in Los Angeles, the presidential bid of the Rev. Jesse Jackson, the emergence of Gen. Colin Powell as a national figure in both military and political arenas, the legal and marital problems of Michael Jackson, the double-murder trial of O.J. Simpson, and the "Million Man March." But is the coverage better? Or more to the point, is the coverage less stereotypical?

Lester and others have shown that although coverage has increased throughout the years studied, African American content categories typically cluster around three primary topics—sports, entertainment, and crime.² Such emphasis maintains the stereotypical assumptions of readers and viewers that the media often communicate. In the preface to a recently published collection of essays detailing the media stereotypes of ethnic, gender, age, physical disabilities, sexual orientation, and job-related categories, *Images that Injure Pictorial Stereotypes in the Media*, Everette Dennis of the Freedom Forum Media Studies Center writes,

Stereotypes have come a long way since Walter Lippmann first proffered his formulation of "pictures in our heads." On the one hand, stereotypes are rather negatively defined as "a conventional, formulaic and oversimplified conception, opinion or image," while on the other they communicate dramatically and well.

For visual communicators, whether photographers, videographers, filmmakers cartoonists, or graphic artists, stereotypes are useful devices because they are easily understood and make a clear, if unfair and at times hurtful, point. For cartoonists, such depiction is part of their job description, **but for communicators charged with an accurate representation of news and information, even entertainment fare, they can be damaging and dangerous** [emphasis added].¹

The news media, then, are put on a high standard because of the journalism mission to portray persons in the community accurately, completely, and fairly.

As with the previous study, this research attempts to address five hypotheses about the African American photo coverage in four newspapers:

H1: There will be an overall increase in African American pictorial coverage.

H2: There will be similar content category patterns for all seven publications.

H3: Stereotypical coverage will decrease overall.

H4: Non-stereotypical coverage will increase overall.

H5: The four newspapers will show similar African American front page percentages.

METHOD

As with the previous study, a content analysis of the pictorial treatment of African Americans was performed from the national editions of microfilm records for all Monday through Friday issues for March, June, September, and December, for 1995, of *The New York Times*, the *Chicago Tribune*, the *New Orleans Times-Picayune*, and the *San Francisco Chronicle*. Obviously, the methodology, publi-

cations and dates were chosen to coincide with the previous research.

Several researchers, including Woodburn, Miller, Blackwood, Stempel and Sherer, have written that pictorial evidence using content analysis is a good method for analyzing a publication's record in media stereotyping.⁴ Because readers often obtain their first impressions of a story by noticing the picture that accompanies it first, photographs are powerful communicative devices. As Lester notes in *Visual Communication Images With Messages*,

Because pictures affect a viewer emotionally more than words alone do, pictorial stereotypes often become misinformed perceptions that have the weight of established facts. These pictures can remain in a person's mind throughout a lifetime.⁵

The unit of analysis was the human figure picture. A human figure photograph is one that has at least one person within the frame of the image. Still-lives and scenics without people and images that only showed a person's hands or feet were not included as well as graphic illustrations. Coverage of foreign persons of African descent was not included. If a newspaper printed several zones, the metro edition was used. All human figure photographs, then, were counted, and pictures with African Americans were divided into specific content categories.

The subject categories were sports, advertising, human interest, entertainment, crime, politics, education, social problems, business, high society, accident, religion, war, health, and science. In addition, coders noted if African Americans were featured on the front page or cover. The fifteen categories are defined as:

Sports. Any sports-related feature or action picture.

Advertising. Any non-editorial picture used to sell a product or service.

Human Interest. A photograph where everyday life activities are featured that shows no regard to racial considerations. Fashion photography, weather, and obituaries also fit this category.

Entertainment. Any celebrity when connected with a performance featured in a photograph.

Crime. Any police coverage, the accused, trials, legal personnel, or victims within a crime-related picture.

Politics. Any photograph of a politician or political event.

Education. Any school-related picture.

Social Problems. Societal issues that affect African Americans directly.

Business. Pictures that involve money matters and business activities.

Social News. Any image that details high society including weddings and anniversaries.

Accident. Pictures of events either caused by people or natural.

Religion. A picture that gives details about a religious service, event, or individual.

War. Any picture where the violent acts of war are depicted or where persons prepare for or engage in war-related activities.

Health. Pictorial coverage related to individual or environmental health issues.

Science. Images that detail scientific breakthroughs, information, or news about a scientist.

To coincide with the previous studies, the fifteen subject categories were combined into four main groups—stereotypical images (sports, entertainment, and crime), race-blind images (human interest, accident, religion, war, and science), special interest images (politics, education, social problems, business, high society, and health), and advertising images. "Race-blind" images refer to those pictures in which the subject of the photograph happen to be African American while "special interest" images refer to content that features African Americans in a meaningful way.

Each researcher coded approximately half of all the images for this study.

FINDINGS

Content coders examined 337 issues and found 40,127 human figure pictures and 6,987 African American images. The analysis yielded mixed results for the hypotheses (See Table 1):

H1: There will be an overall increase in African American pictorial coverage.

The hypothesis is supported. Every newspaper showed an increase in African American pictorial coverage with all but the *San Francisco Chronicle* exhibiting an increase of over 100 percent.

H2: There will be similar content category patterns for all newspapers.

Mixed results for the hypothesis. For the stereotypical images category, the *Tribune* showed a higher percentage compared with the similar pattern exhibited for the other newspapers. For the race-blind images category, the *Times* and the *Tribune* had similar percentages while the *Times-Picayune* exhibited a dramatic increase in the human interest category and the *Chronicle* showed a dramatic decrease in human interest pictures. For the special interest images category, the overall pattern of percentages is similar for the *Times*, *Tribune*, and *Chronicle* while the *Times-Picayune* is higher because of its emphasis on social news. For the advertising images category, there is no discernible pattern of percentages between the newspapers with the *Time-Picayune* being the lowest and the *Chronicle* being the highest.

H3: Stereotypical coverage will decrease overall.

Mixed results for the hypothesis. Except for the *Times* which showed a marginal increase in stereotypical coverage, all the other newspapers exhibited a marked decrease in such pictorial coverage, with the *Chronicle* lower than as much as 14 percentage points.

H4: Non-stereotypical coverage will increase overall.

Mixed results for the hypothesis. Although the *Times* and the *Tribune* percentages remained about the same compared with the previous study, the *Times-Picayune* showed a dramatic rise in human interest and social news content categories. However, the *Chronicle* exhibited a much lower percentage for human interest images.

H5: The four newspapers will show similar African American front page percentages.

Mixed results for the hypothesis. The *Times* and the *Chronicle* showed a relatively low percentage of front pages that contained one or more pictures of African Americans compared with the high percentages of the *Tribune* and the *Times-Picayune*.

RESULTS

Perhaps not surprising given the increased emphasis on visual communication in all manner of media, all four newspapers in this study dramatically increased their overall picture figure and their overall African American image figure. Consequently, the overall African American picture percentage for every newspaper is above 11.3 percent, the African American population percentage for the United States. John Wheatley has noted that African American percentages should mimic the population figure if one is to conclude that image selections were not a result of racial selection.⁶ However, Lester points out that:

There is no advantage in publishing a larger percentage of African Americans if those images are mostly crime, sports, and entertainment subjects.⁷

The present study has shown that for most of the newspapers, progress has been made in reducing the stereotypical images while increasing the non-stereotypical portrayals of African Americans. However, much work still needs to be accomplished.

The New York Times. As the newspaper out of the four most recognized as a national leader in the field of journalism, it is startling to note the almost similar pattern in percentages in every subject category compared with the findings in the previous study. Although the overall percentage of African American images increased by almost twice as much, the distribution of those images indicates a strong emphasis on sports with little or no interest in many of the other categories. The *Times* also contained the smallest percentage for front page pictures among the other newspapers. The results of the present study indicates that this is a national newspaper that must take a hard look whether it is serving a national audience.⁸

The Chicago Tribune. With the highest percentage of stereotypical images of all the other newspapers in the previous study, the *Tribune* had no where else to go with this category but lower. Although this study recorded a dramatic rise in entertainment pictures and a slight increase in crime subjects, there is over a 10-percentage decrease in sports images. The race-blind and special interest image categories are remarkably similar while advertising images increased markedly. This is a newspaper, then, that seems to be making conscious changes in its pictorial coverage.

The San Francisco Chronicle. This newspaper registered only a slight increase in the overall African American picture percentage. Compared with the other newspapers, the small increase coupled with a poor front page percentage and a dramatic decrease in the percentage of human interest pictures, the results are disappointing. However, the overall stereotypical image percentage, especially with regards to sports photos, is down while the advertising image category increased by almost twice as much. This is a newspaper that needs to make further progress in its reduction of sports coverage while dramatic improvement needs to be accomplished in most of the other categories.

The New Orleans Times-Picayune. In many ways, the results of this study indicate that the *Times-Picayune* could be a model for other newspapers around the country. For example, the overall African American pictorial percentage is 23.7, twice the national figure. Such a result indicates that the editors at the *Times-Picayune*, serving in a state with an African American percentage of 29.4, is sensitive to the sentiment expressed by Lester in his previous study when he writes that:

Percentages of photographs representing African Americans should reflect the regional populations the newspapers serve. A newspaper does not only serve its readers or advertisers. A newspaper does not only serve its journalists. A newspaper serves its community. Part of the challenge to produce a daily document is to make sure that the entire community is served—regardless of whether some segments of the community subscribes to the newspaper or not.⁹

Further evidence of this commitment to community journalism is seen in the low overall stereotypical image category, the high human interest subject category, and the reasonable percentage totals for the special interest and advertising images. This newspaper also has the highest front page percentage of any of the other three. African Americans are visible in the *Times-Picayune* without sacrificing stereotypical coverage.

CONCLUSIONS

The tone of the conclusion in the previous study, for which the present work is a continuation, was a bit disheartening. For although

progress had been made through the years in including African Americans within the pages of these popular publications, sports, entertainment, and crime were the primary content categories. The present study indicates that although stereotypical coverage is still the mainstay of African American pictorial use in these four newspapers, the general trend shows decreases in such coverage with conversely increases in other content categories.

That is not to say that more work needs to be done. The content category percentages for accident, religion, war, science, and health are shockingly low with little increases over the percentages shown in the previous study. Are there really no African American scientists or doctors working in these four communities? A concentrated effort must be made to show readers that African Americans provide a wide range of issues and services to the community apart from those that automatically and stereotypically come to mind.

It is hoped that by the end of the century when a similar study is completed, the results that were demonstrated for the *Times-Picayune* will be repeated in the other newspapers but with a notable exception—the percentages for race-blind and special interest image categories will exceed that of the stereotypical image category. And once that step is accomplished, journalists will come to understand that community, civic, or public journalism involves full, fair, and free access to pictorial representation by all cultural groups—whether based on ethnic, gender, physical, sexual, or professional characteristics—within the pages of a community, civic, or public publication.

NOTES

¹Paul Martin Lester, "African-American Photo Coverage in Four U.S. Newspapers, 1937-1990," *Journalism Quarterly* 71/2 (Summer 1994): 380-394.

²See Carolyn Martindale, *The White Press and Black America* (NY: Greenwood Press, 1986) and Alice Sentman, "Black and White: Disparity in Coverage by Life Magazine from 1937 to 1972," *Journalism Quarterly* 60 (Autumn 1983): 501-508.

³Everette Dennis, "Preface," in Paul Martin Lester (ed.), *Images that Injure: Pictorial Stereotypes in the Media* (Westport, CT: Praeger Publishers, 1996), ix.

⁴See Bert Woodburn, "Reader Interest in Newspaper Pictures," *Journalism Quarterly* 24 (Autumn 1947): 197; Susan Miller, "The Content of News Photos: Women's and Men's Roles," *Journalism Quarterly* 52 (Spring 1975): 72; Roy Blackwood, "The Content of News Photos: Roles Portrayed by Men and Women," *Journalism Quarterly* 60 (Winter 1983): 711; Guido Stempel, "Visibility of Blacks in News and News-Picture Magazines," *Journalism Quarterly* 48 (Summer 1971): 337-339, and Michael D. Sherer, "Vietnam War Photos and Public Opinion," *Journalism Quarterly* 66 (Summer 1989): 391-92.

⁵Paul Martin Lester, *Visual Communication Images With Messages* (Belmont, CA: Wadsworth Publishing Company, 1995), 103.

⁶John Wheatley, "The Use of Black Models in Advertising," *Journal of Marketing Research* 8 (August 1971): 391.

⁷Lester, "African-American Photo Coverage," 381.

⁸However, Nancy Lee, the picture editor for the *New York Times* disputes the findings for the metropolitan edition. In a personal E-mail message (May 20, 1996) she states:

"Dear Mr. Lester,

I got your notification about your research paper. I would be interested to know if you looked at the National Edition of our paper or the Metropolitan Edition. Our metro section regularly shows people of color in much more than pictorial stereotypes. Half of our photographers are nonwhite, and they bring us images more telling of their lives. And we publish them.

If you have not counted the images in our regular metro section, I think you are giving a skewed image of what we do."

Microfilm records of the *New York Times*—and every other newspaper in this study—were available only for the national edition.

⁹Lester, "African-American Photo Coverage," 393.

TABLE 1*Percentage Totals For All Newspapers, 1990 and 1995*

	All Newspapers Combined		New York Times		Chicago Tribune		NO Picayune		SF Chronicle	
	1990 [^]	1995	1990	1995	1990	1995	1990	1995	1990	1995
No. of Issues	328	337	80	86	79	86	83	86	86	79 ^{^^}
All Pictures	29,409	40,127	7,709	9,145	7,307	13,350	7,414	9,892	6,979	7,740
Afri Amer Pics	3,129	6,987	612	1,427	942	2,286	851	2,349	724	925
Afri Amer %	10.6	17.4	7.9	15.6	12.9	17.1	11.5	23.7	10.4	12.0
Front Page %	na	51	na	33	na	60	na	73	na	38
<i>Stereotypical Images</i>										
Sports	34.8*	25.6	26.4	27.2	51.6	32.9	30.2	15.9	39.5	25.4
Entertainment	6.7	9.9	6.9	6.7	5.3	11.9	10.5	11.7	11.4	9.2
Crime	6.8	6.3	8.7	8.2	3.4	4.1	4.8	8.5	2.7	4.5
Subtotal	48.3	41.8	42.0	42.1	60.3	48.9	45.5	36.1	53.6	39.1
<i>Race-Blind Images</i>										
Human Interest	9.6	10.8	6.4	6.7	7.9	8.7	10.1	25.2	9.3	2.6
Accident	0.6	0.3	0.4	0.3	1.0	0.2	1.3	0.4	0.8	0.4
Religion	0.3	0.6	0.6	0.5	0.2	0.8	0.7	0.5	0.4	0.5
War	1.0	0.2	0.0	0.0	0.5	0.2	0.3	0.2	0.6	0.3
Science	0.1	0.5	0.1	0.1	0.4	0.1	0.0	0.0	0.5	0.0
Subtotal	11.6	12.4	7.5	7.6	10.0	10.0	12.4	26.3	11.6	3.8
<i>Special Interest Images</i>										
Politics	5.1	3.4	3.2	2.9	4.7	2.6	2.6	4.0	3.1	4.1
Education	3.8	2.2	3.2	3.4	2.1	2.3	2.6	2.4	1.7	0.6
Social Problems	3.3	2.4	3.8	3.5	1.9	2.3	2.8	1.2	2.9	2.7
Business	1.7	1.5	0.7	0.7	1.8	1.9	0.5	1.9	1.0	1.3
Social News	0.1	2.6	0.0	0.0	0.0	0.2	4.1	9.7	0.3	0.4
Health	0.5	0.6	0.6	0.9	0.5	0.9	0.6	0.4	0.3	0.1
Subtotal	14.5	12.7	11.5	11.4	11.0	10.2	13.2	19.6	9.3	9.2
<i>Advertising Images</i>	25.4	33.9	39.0	38.9	18.5	30.9	29.0	18.1	25.5	47.7

[^]figures for 1990 are an average of 1978, 1983, and 1990 results^{^^}seven issues were missing from the microfilm record

*total percentages may be higher or lower than 100 due to rounding

PICTORIAL STEREOTYPES IN THE MEDIA

a pedagogical discussion

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Accepted for Presentation by the Visual Communication Division of the AEJMC during the 1996 Anaheim, California Conference

ABSTRACT

As teachers we are continually faced with the task of creating lectures with words and pictures that will make the information live for our students. This presentation will demonstrate the techniques used to discuss the issue of pictorial stereotyping by the media, show how to discuss sensitive topics with students, and demonstrate how words, pictures and music can stimulate students both intellectually and emotionally. This presentation will also introduce a new book by Praeger Publishers, *Images that Injure Pictorial Stereotypes in the Media*.

NOTE: This paper is available on the World Wide Web at: <http://www5.fullerton.edu/les/stereotype.html>

On my way to a photojournalism class I was teaching while a graduate student at Indiana University, I passed the office of Will Counts, one of my professors, and he yelled out, "MAKE IT LIVE."

He no doubt said the phrase to challenge me. As teachers we are continually faced with the task of creating lectures with words and pictures that will make the information live for our students. For a lecture to live, it must stimulate students both intellectually and emotionally. For a lecture to live, the information must be remembered by the students.

This presentation will demonstrate the techniques I use to discuss the issue of pictorial stereotyping by the media. The presentation will also show how to discuss sensitive topics with students and demonstrate how words, pictures and music can stimulate students both intellectually and emotionally.

Students in my large-lecture visual communications course are asked to prepare for the topic by reading the chapter in *Visual Communication Images with Messages* (Wadsworth Publishing Company) titled, "Images that Injure: Pictorial Stereotypes in the Media" and the edited book, recently introduced by Praeger Publishers, with the same title as the chapter.

The class discussion begins with an instruction to them to "make some noise" and talk amongst themselves about instances in their lives in which they felt discrimination. During their lively chats with each other, I go around the room and engage students who are quiet to get them talking with their classmates. After about fifteen minutes, I settle everyone down and admit the times when I felt discriminated against in my own life. I then ask to hear some of their own stories. With a class of over 120 students, many hands instantly are raised. Stories range from African American students being followed in a store to women being ignored by sales personnel in computer stores and car dealerships.

After everyone gets a chance to tell their story, I begin a formal lecture. Here is an excerpt of the lecture I make before I show the slide presentation:

I hope you haven't assumed by the title of today's topic that I'm here to bash the media. The media stereotype because we stereotype. Since our brains naturally classify what we see, we can't help but notice the differences in

physical attributes between one person and another. But it is not natural to stereotype. As with the printing term from which the word comes, to stereotype is a short-hand way to describe a person with collective, rather than unique characteristics. History has shown that stereotyping leads to scapegoating that leads to discrimination that leads to segregation that leads to physical abuse that leads to state-sponsored genocide.

Because visual messages are products of our sense of sight, pictures are highly emotional objects that have long-lasting staying power within the grayest regions of our brain. Media messages that stereotype individuals by their concentrations, frequencies, and omissions become a part of our long-term memory. The media typically portray members of diverse cultural groups within specific content categories—usually crime, entertainment, and sports—and almost never within general interest, business, education, health, and religious content categories. And when we only see pictures of criminals, entertainers, and sports heroes, we forget that the vast majority of people—regardless of their particular cultural heritage—have the same hopes and fears as you or me.

In the *Images that Injure* book, there are essays concerning the cultural images of Native Americans, Africans, Mexicans, Pacific Islanders, Arabs, Anglos, Jewish persons, women, men, children, older adults, the physically disabled, blind persons, large persons, gay and lesbian persons, teachers, politicians, lawyers, police officers, religious followers, media personnel, and media victims. Chances are, the mental image you have of a member

of one of those cultural groups is one that is mediated—it comes from either print, television, motion pictures, or computers.

Most media experts come up with several reasons why the media stereotype—advertisers that demand quickly interpreted shortcut pictures, lazy or highly pressured reporters that don't take or have the time to explore issues within their multifaceted and complex contexts, few members of diverse cultural groups working as photographers, reporters, editors, or publishers in an organization, the presumed, conditioned expectations of readers and viewers to only accept images of diverse members within a limited range of content categories, and regrettably, and often denied, culturism. Culturism is a term I use to describe the belief that one cultural group—whether based on ethnicity, economics, education, etc.—is somehow better or worse than some other cultural group. Culturism may explain why mainstream media are slow to cover human catastrophes in remote sections of the world such as in Rwanda, Somalia, and South-Central, Los Angeles.

But once again I remind you—and myself—that we see stereotypes in the media because we stereotype in our society. And you know this is true. There are signals, warning signs, and obvious examples everywhere we turn.

Next time you're in a public restroom, notice the disabled persons' stall. Have you ever seen someone in a wheelchair using that toilet? Something is wrong.

Next time you're sitting in your seat on an airplane, notice that almost always the flight attendants are women while the voice welcoming you to 35,000 feet is a man's. Something is wrong.

Next time you're watching a video movie that features a child at home alone successfully defending himself against two, large burglars, notice how easy it all is for the boy. Something is wrong.

And the next time you're watching a basketball game, notice how often all the players on the court are African American while all the fans in the stands are screaming Anglos. Something is wrong.

If you're not willing to change what you know is true in society, there is little chance of there ever being a change in media images. The media provide a message and that message is that the media is you and me.

The slide presentation begins with one in a series of three images I made of a man sitting on the steps of city hall in downtown Dallas during a protest rally while I was a photojournalism student. The other two images of the gentleman come at the beginning of the "Images that Heal" section and at the end of the presentation. I introduce the slide presentation with:

This is one of the first photographs I ever made. And although I never spoke to this man, never learned his name, and only spent 1/500th of a second with him, he has taught me, over the years, more about myself, about photography, and about people than many educators, friends, and family members I have known my entire life. One lesson is—don't jump to conclusions. Resist your automatic, brain-commanded categories. Wait. Be patient. Have the courage to trust. There may be other tiny moments to see of a person's life that reveal larger truths. And now I want to show a collection of images that do and do not stereotype. The pictures at the end of the following presentation come from a section of the *Images that Injure* book titled "Images that Heal."

Finally, I conclude my lecture with these tips for avoiding pictures that stereotype:

- Show members of diverse cultural groups in everyday life situations.
- Have the courage to explore in words and pictures the underlying social problems at the heart of a violent act.
- Learn all you can about visual literacy so you can really look at the images in newspapers, magazines, and on your local television news show.
- Take the time to study the snapshots of your family and friends and the images printed, broadcast, and downloaded and question yourself and all who will listen about the meaning and ethics of the images we make and see.

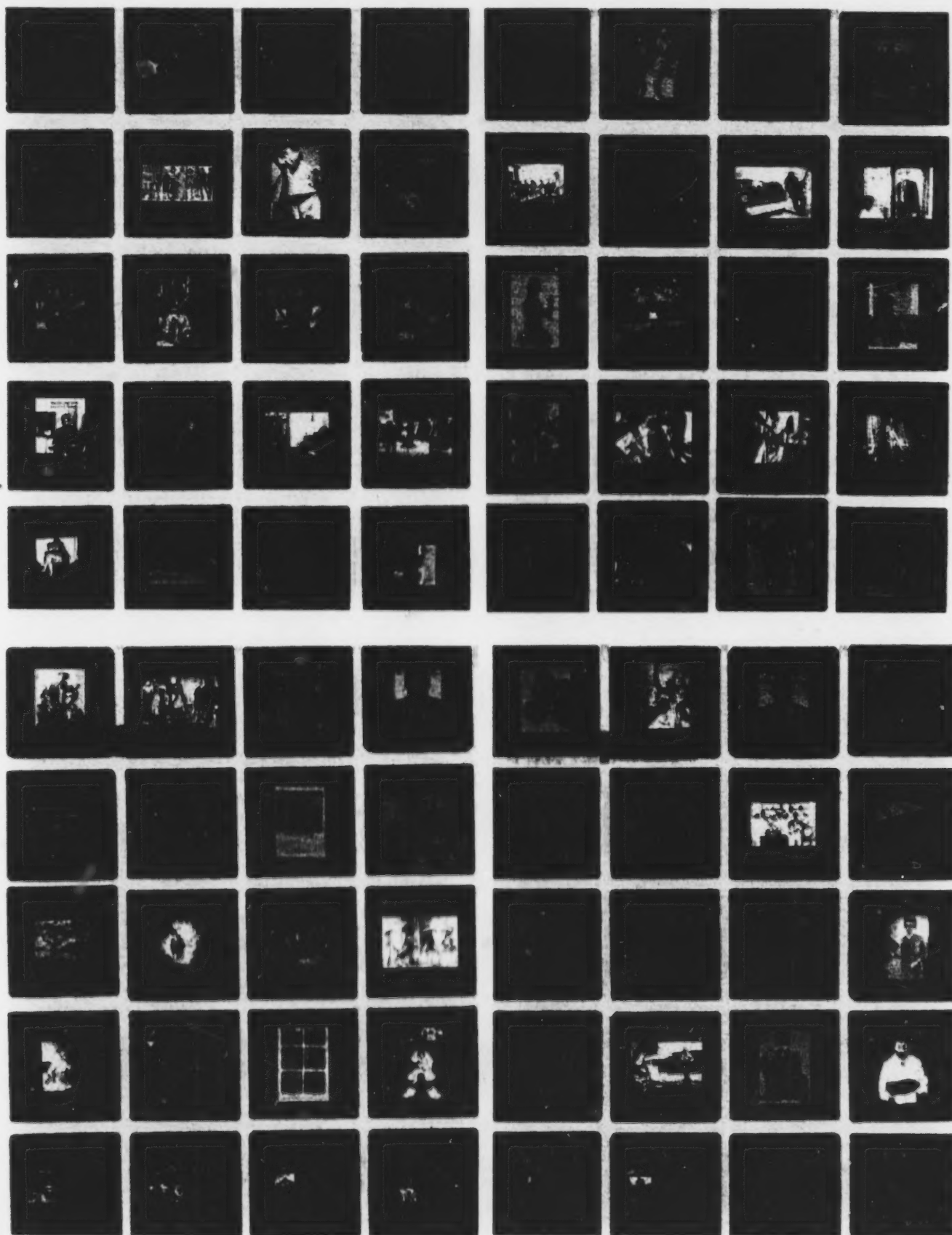
At the end of the slide presentation, the students spontaneously erupted into applause. In all my years of teaching, such an occurrence had never before happened. It is my students' reaction and positive feedback after the class that tell me that indeed, I did "make it live."

THE SLIDE SHOW

Please note that the following slide reproductions were made with a black and white printer. Many of the originals are in color.

The arrangement of the slides is designed for a two-projector set-up with a dissolve unit. Therefore, you must alternate from one slide sheet to the other in this printed version to simulate a presentation utilizing two trays.

The "Images that Injure" section includes the musical selection by Enya titled, "Boadicea" while the "Images that Heal" section includes Joan Osborne's "One of Us."



How Media Use and Demographics Affect Satisfaction with the Appearance of Community Newspapers

A Research Paper Presented to the Visual Communication Division
of the AEJMC National Convention, Anaheim, Calif., Aug. 13, 1996

by John Mark King, Assistant Professor, Manship School of Mass Communication, Louisiana State University

Abstract

Effects of demographics and media use on satisfaction with the appearance of small daily newspapers were examined. Independent variables were age, education, income, time spent with TV, cable TV in the home, time spent reading magazines and readership of visual metro newspapers and *USA Today*. Dependent variables were 12 Likert scales measuring satisfaction with appearance.

A survey of 752 subscribers tested seven hypotheses. Results showed that time spent with TV, cable TV in the home and time spent with magazines had little impact on satisfaction with appearance. Readership of visual metro newspapers or *USA Today* had some negative impact. Age had the strongest effect. As age increased, satisfaction with appearance increased on nine of the 12 appearance variables. Education and income had some negative impact.

The author recommended that editors and publishers should determine the demographics of readers to guide decisions on visual communication changes in small community daily newspapers.

**How Media Use and Demographics Affect
Satisfaction with the Appearance of Community Newspapers**

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Visual Communication Division of the AEJMC National Convention
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**by John Mark King, Ph.D.
Assistant Professor
Manship School of Mass Communication
Louisiana State University**

Introduction

Today's newspaper reader is bombarded with a world full of visual media. Network and local television, cable television, magazines, newspapers in medium and large markets and *USA Today* all present the user with bold and colorful visual communication. All of this creates challenges for newspaper publishers and editors, visual communication educators and visual communication researchers.

Many newspapers have responded to the visual competition by expanding use of color, graphics, dominant photographs, stylistic typography and information graphics all organized into highly visual packaged news. Many journalism and mass communications departments, schools and colleges have incorporated visual communication courses into curricula to teach journalism and mass communication students foundations and skills of visual communication. Visual communication researchers have responded to the visual changes in communication by devising content analysis studies, experiments and surveys to try to assess the effects and industry trends concerning visual communication in newspapers.

Newspaper editors and publishers at small daily newspapers are faced with the challenge of presenting news, information and entertainment in print form to readers who are constantly bombarded with visual media from all directions. The question of interest here is whether use of other media such as television, cable television, magazines and large metro newspapers and *USA Today* have an impact on satisfaction with the appearance of small daily newspapers. How demographics such as age, income and education impact satisfaction with appearance is also important.

Previous visual communication research applied to newspapers has suggested that readers are attracted to visuals in newspapers and positively evaluate papers that devote more space to visuals. Most of these studies have used experimental methods to test the effects of various approaches to visual communication on receivers. Other lines of inquiry have investigated visual communication from the perspective of the message, through

content analysis. These studies have shown generally that newspapers are using more visuals and more color than in previous years. Some studies have used surveys to measure opinions about visual communication.

Only a few studies have measured reader responses concerning satisfaction with visual communication. Most of these have measured satisfaction with the appearance of manipulated versions of newspapers in controlled laboratory settings. Other experiments have tested the effects of various visual elements on reader responses such as recall of information, attention, understanding, comprehension or retrieval of information.

It has been demonstrated that readers in experimental situations do seem to prefer papers with more visuals and more color. It is not clear, however, how media use and demographics impact on reader satisfaction with the appearance of newspapers that readers read on a regular basis. Measures of reader satisfaction with the appearance of newspapers in a real-life situation, the dependent measure employed in the present study, is one indication of actual readers' response to actual newspapers' use and treatment of a variety of visual elements. Independent variables such as media use and demographics which could impact on readers' satisfaction with the appearance of their newspaper, were included as well.

Literature Review

The literature concerning visual communication and reader satisfaction with the appearance of newspapers has generally taken experimental or survey approaches.

Several experimental studies have included appearance variables as part of the research findings. Price¹ found that complex newspaper designs did not increase readership nor comprehension nor provide higher ratings of "interestingness" nor lower ratings on "pleasingness." Siskind² concluded that contemporary well-designed newspapers were preferred over other designs. Results of a study by Click and Stempel³ showed that on 19 of 20 semantic differential scales, color pages were rated higher than black and white

pages. Color pages were deemed more pleasant, valuable, interesting, fair, truthful, unbiased, responsible, exciting, fresh, easy, neat, colorful, bold, powerful and modern. Black and white pages were viewed as more tense.

Bohle and Garcia⁴ found that initial eye movement was toward photos, whether in color or black and white. Readers tended to gravitate toward spot color next. Pages that used a great deal of color resulted in higher evaluations on variables such as important, interesting, pleasant, easy, fresh, colorful, exciting, bold, powerful, loud, active and modern. Garcia and Bohle⁵ expanded their findings on the previous study in a report published by the Poynter Institute in which they noted that more educated respondents were less attracted to color and that respondents from cities in which colorful newspapers were published rated color pages higher.

Smith⁶ found that color and modern design attracted readers on several appearance variables without reducing important journalistic variables such as accuracy, importance and responsibility if those readers were accustomed to colorful, modern pages. Using stepwise regression analysis, Wanta and Gao⁷ found that increased numbers of photographs and larger graphics increased attractiveness.

Tankard⁸ determined that chartoons (cartoons and charts combined) and three dimensional graphs were more appealing than plain graphs, but the flashier graphics did not provide any more information gain than the plain graphs. Kelley⁹ tested accuracy of recall between information graphics with low data-ink ratio and high data ink-ratio. The data-ink principle, devised by Tufte, basically says that the ink in an information graphic should represent information drawn from statistical or numerical information presented and not be cluttered up with chart junk. Like Tankard, Kelley found no differences in recall between low data-ink and high data-ink graphics, suggesting that decorative elements in the graphics do not diminish information gain. Pasternack and Utt¹⁰ concluded that readers expect information graphics to provide them with information, not just color and an attractive package.

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Several studies examined the effects of photos on reader responses. Wolf and Grotta¹¹ found that photos with more action may not aid in recall of information, but may attract readers to stories. Wanta¹² demonstrated that larger photos may provide an agenda-setting effect. Huh¹³ tested the effects of photo size on reader attention and found that as picture size increased readership increased.

A few survey studies have also examined newspaper appearance. McCombs, Mauro and Son¹⁴ surveyed 375 readers of the *Richmond News Leader* and concluded that the best predictor for readership of stories was placement on the front page of a section. Photographs were also noted as a positive predictor of readership.

Gladney¹⁵ reported that a national survey of 257 newspaper editors at all circulation levels revealed that visual appeal ranked fourth on the list of content standards, behind strong local coverage, accuracy and good writing. However, 45 percent rated visual appeal as essential.

Heller¹⁶ found that respondents in a survey about design of small circulation dailies (under 25,000) identified overall design as the most important aspect of visual communication for a small daily newspaper followed by front page design, photography, section design, typography, feature design, color use, information graphics and illustrations.

Hartman¹⁷ carried out a survey of 323 respondents, all 18-35 year-olds, and found that half of those who read *USA Today* felt that other papers should emulate the style and design of *USA Today*.

Perhaps the most extensive surveys about newspaper design have been conducted by Sandra Utt and Steve Pasternack. Over the past decade, they have completed three national surveys to determine the appearance of newspaper front pages in the United States. The first study by Utt and Pasternack¹⁸, a survey of editors at 78 newspapers with circulation of more than 25,000, found that about two-thirds of the papers used a modular design format. Eighty-one percent of the editors said they were satisfied with the way

their front pages looked, but only 53 percent said American newspaper front pages in general were attractive.

The second survey by Utt and Pasternack¹⁹ gathered responses from 93 editors. Eighty-seven percent said their paper was more attractive than when the first study was done. Two-thirds thought readers were concerned about graphic design. Even though they rated *USA Today* fairly low on attractiveness, half of the editors said they refer to the paper when considering design ideas.

The most recent survey by Pasternack and Utt²⁰ noted many changes in the appearance of newspaper front pages. Use of color had increased to the point that 75 percent use four-color photos everyday; modular format had grown to 82 percent usage; all used a dominant photo on page one each day; 78 percent said they used more information graphics than they did five years previously. Eighty-seven percent reported that their papers looked better than five years before. Interestingly, although 94 percent of the editors agreed that appearance can be critical in competitive situations when readers decide which paper to read only 47 percent had ever surveyed readers' reactions to their newspapers' design. Overall, the authors concluded that newspaper editors were more concerned about visual communication than ever before.

Hypotheses

The above literature review demonstrates that questions about the impact of media use and demographics have not been fully answered by previous research. Seven hypotheses were designed to test the influence of media use and demographics on measures of satisfaction with appearance. Media use variables were time spent with television daily, the presence or non-presence of cable TV in the home, time spent with magazines weekly and readership of visual newspapers available in the area including the *Wichita Eagle*, the *Kansas City Star*, the *Topeka Capital-Journal* and *USA Today*. Demographic variables included in the study were age, income and education.

H1: Increased time watching television will result in decreases on measures of satisfaction with the appearance of the newspaper.

Hypothesis one centered on the influence of time spent watching television, measured in daily minutes, on satisfaction with the appearance of the newspaper. It was reasoned that increased time spent watching television would result in a decrease on measures of satisfaction with the appearance of the newspaper due to the general high quality of visuals in expensive television productions. The idea here was that readers who spend a lot of time watching television would be less satisfied with the comparable quality of visual communication in their local community newspaper.

H2: The presence of cable television in the home will result in decreases on measures of satisfaction with the appearance of the newspaper.

A very similar line of reasoning was evident in hypothesis two. Cable television, which uses production techniques similar to local and network television, also presents many photos, graphics and color images. Cable TV was predicted to have a very similar impact on satisfaction with the appearance of the community newspaper. Since cable TV involves additional expenses, the presence of cable TV in the home suggests more attention to television, which could have a negative effect on satisfaction with visual communication in the community newspaper.

H3: Increased time spent reading magazines will result in decreases on measures of satisfaction with the appearance of the newspaper.

Time spent reading magazines was the independent variable in hypothesis three, which predicted that more time spent reading magazines would result in decreases on measures

of satisfaction with the appearance of the community newspaper. Readers who see high quality reproduction of color photographs, color graphics and other forms of visual communication in magazines may not be as satisfied with the visual communication produced by their small circulation daily newspapers.

H4: Readership of visual newspapers (*Wichita Eagle*, *Kansas City Star*, *Topeka Capital-Journal* and *USA Today*) will result in decreases on measures of satisfaction with the appearance of the newspaper.

The final media use variable concerned readership of large metro newspapers available in the area or *USA Today*. Hypothesis four predicted the same general trend as the previous hypotheses about media use. The theoretical idea here was that readers of small daily community newspapers who also see large, visual, colorful and graphic newspapers such as metro dailies or *USA Today* may be dissatisfied with the way their local newspapers handle photos, graphics, color and design and may in turn be less satisfied with the appearance of their local newspaper than readers who are not exposed to sophisticated visual communication in large metro newspapers or *USA Today*.

H5: Increases in age will result in increases on measures of satisfaction with the appearance of the newspaper.

Demographic influences of age, income and education were considered in the remaining hypotheses. Hypothesis five predicted that there would be more satisfaction with visual communication as age increased. Conversely, younger readers should have less satisfaction with the appearance of their community newspaper. Clearly, it appears reasonable to predict that younger viewers who grew up in the age of television, cable TV, color magazines, video games, computers, on-line information services and colorful metro

newspapers would be less satisfied with the visual presentation they receive from their local community newspaper.

H6: Increases in income will result in decreases on measures of satisfaction with the appearance of the newspaper.

Income, the independent variable in hypothesis six, was predicted to have a negative influence on satisfaction with the appearance of the newspaper, the dependent variable. The reasoning here was that since people of higher incomes are more likely to be exposed to well-designed newspapers they would react less favorably to their local newspaper regarding satisfaction with appearance.

H7: Increases in education will result in decreases on measures of satisfaction with the appearance of the newspaper.

The same rationale used to predict the influence of income on satisfaction with appearance was also employed in predictions on the influence of education. Hypothesis seven predicted that increases in education would result in less satisfaction with the appearance of the newspaper since more education may result in more awareness that the local community newspaper does not match the general visual appeal and visual sophistication of large metro newspapers nor *USA Today*.

Methodology

A telephone survey of 752 randomly selected subscribers of two small daily newspapers was conducted to test the hypotheses. The two newspapers selected were the *Chanute Tribune* and the *Iola Register*, both small circulation dailies (under 10,000 circulation) from demographically similar communities in Kansas. The next-birthday

calling method, researched by Salmon and Nichols²¹, was used to randomize the respondents by gender. A total of 903 households was called to reach the sample size of 752, for a response rate of 83 percent.

The two newspapers were also selected on the basis of differing approaches to visual communication. A content analysis of a constructed week²² of both papers determined that the Iola paper took a traditional (less visual) approach to visual communication, and the Chanute paper took a modern (more visual) approach. Subsequent regression analysis showed that there were few significant differences in satisfaction with the appearance of the two newspapers. Responses from subscribers of both papers were then pooled to test the overall impact of media use and demographics on satisfaction with appearance.

The dependent variables included whether the appearance of the newspaper was perceived as interesting, exciting, uncluttered, colorful, pleasant, fresh, modern, appealing, strong, attractive and good overall. Measures were recorded on a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=no opinion, 4=agree, 5=strongly agree). Independent variables were media use including minutes spent with television daily, presence of cable TV in the home, minutes spent reading magazines weekly and readership of large visual newspapers available in the area (*Wichita Eagle*, *Kansas City Star*, *Topeka Capital-Journal* and *USA Today*). Demographic independent variables were age, income and education.

Results

H1: Increased time watching television will result in decreases on measures of satisfaction with the appearance of the newspaper.

Hypothesis one was supported on only one variable, exciting. As Table 1 shows, respondents rated their papers .08 lower on exciting, significant at less than .05. None of

the other regression tests were significant, suggesting that increased time watching television may have only slight impact on measures of satisfaction with the appearance of the community newspaper.

Table 1: Regression analysis of minutes of television viewing daily on measures of satisfaction with the appearance of the newspaper

Independent variable: Minutes of television viewing daily

Dependent Variable	B	Beta	t	R2	F	p
Interesting	.00	.02	.59	.00	.35	.56
Exciting	-.00	-.08	2.12	.01	4.50	>.05
Uncluttered	-.00	-.01	.34	.00	.12	.73
Colorful	-.00	-.01	.26	.00	.07	.79
Pleasant	-.00	-.01	.30	.00	.09	.77
Fresh	-.00	-.03	.87	.00	.76	.38
Modern	.00	.03	.68	.00	.46	.50
Professional	-.00	-.00	.02	.00	.00	.99
Appealing	-.00	-.02	.65	.00	.42	.52
Strong	.00	.01	.36	.00	.13	.71
Attractive	.00	.02	.54	.00	.30	.59
Overall Appearance	-.00	-.02	.58	.00	.33	.56

H2: The presence of cable television in the home will result in decreases on measures of satisfaction with the appearance of the newspaper.

Cable television had no impact on satisfaction with the appearance of the newspaper.

As shown in Table 2, hypothesis two was not supported.

Table 2: Regression analysis of cable TV in the home on measures of satisfaction with the appearance of the newspaper**Independent variable: Cable TV in the home**

Dependent Variable	B	Beta	t	R2	F	p
Interesting	.01	.00	.08	.00	.01	.94
Exciting	-.03	-.00	.25	.00	.06	.81
Uncluttered	.01	.00	.12	.00	.01	.91
Colorful	-.05	-.02	.45	.00	.20	.66
Pleasant	-.09	-.06	1.52	.00	2.30	.13
Fresh	.08	.05	1.24	.00	1.53	.22
Modern	.10	.05	4.37	.00	1.86	.17
Professional	.03	.02	.46	.00	.21	.64
Appealing	.02	.01	.24	.00	.06	.81
Strong	.06	.02	.66	.00	.43	.51
Attractive	-.00	-.00	.04	.00	.00	.97
Overall Appearance	.09	.06	1.64	.00	2.67	.10

H3: Increased time spent reading magazines will result in decreases on measures of satisfaction with the appearance of the newspaper

In hypothesis three, it was predicted that increased time spent reading magazines would result in decreases in satisfaction with the appearance of the newspaper because readers of magazines generally are exposed to well designed, attractive, colorful publications. It was reasoned that this would result in less satisfaction with the appearance of the community newspaper. Table 3 provides no support for this hypothesis. The only significant regression was on the attractive variable, but the result was not in the predicted direction. As time spent reading magazines increased, perceptions of the community newspaper as attractive increased, rather than decreased, as predicted. None of the other regressions on the appearance variables with time spent reading magazines were significant.

Table 3: Regression analysis of minutes spent reading magazines weekly on measures of satisfaction with the appearance of the newspaper

Independent variable: Minutes spent reading magazines weekly

Dependent Variable	B	Beta	t	R2	F	p
Interesting	.00	.03	.93	.00	.86	.35
Exciting	.00	.04	1.07	.00	1.16	.28
Uncluttered	.00	.03	.75	.00	.55	.46
Colorful	-.00	-.04	1.21	.00	1.06	.30
Pleasant	-.00	-.00	.04	.00	.00	.97
Fresh	.00	.02	.47	.00	.22	.64
Modern	.00	.01	.29	.00	.09	.77
Professional	.00	.33	.90	.00	.82	.37
Appealing	.00	.04	1.06	.00	1.11	.29
Strong	-.00	-.04	1.17	.00	1.36	.24
Attractive	.00	.08	2.14	.00	4.60	<.05
Overall Appearance	.00	.04	.98	.00	.96	.32

H4: Readership of visual newspapers (*Wichita Eagle*, *Kansas City Star*, *Topeka Capital-Journal* and *USA Today*) will result in decreases on measures of satisfaction with the appearance of the newspaper

Hypothesis four predicted that readers of visual metropolitan newspapers available in the area or *USA Today* would be less satisfied with the appearance of the community newspaper. As is evident in Table 4, readers of the *Wichita* paper rated their community paper .09 lower on colorful, significant at less than .01. Readers of the *Kansas City* paper rated their local community paper .07 lower on fresh and .08 lower on strong, both significant at less than .05. Readers of *USA Today* rated their local community paper lower on exciting, significant at less than .05; .09 lower on uncluttered, significant at less than .01; .08 lower on modern, significant at less than .05; and .14 lower on strong,

significant at less than .001. Readership of the Topeka paper had no significant impact on any of the appearance variables.

Readership of *USA Today* had larger significant impact on more appearance variables than any of the other large metro papers or use of other media in the study. Clearly, readers who were exposed to the visual design and use of color in *USA Today* desire some visual changes from their community newspaper.

Table 4: Regression analysis of readership of the *Wichita Eagle*, *Kansas City Star*, *Topeka Capital-Journal* and *USA Today* on measures of satisfaction with the appearance of the newspaper

Independent variable: *Wichita Eagle*

Dependent Variable	B	Beta	t	R2	F	p
Interesting	-.04	-.03	.90	.00	.80	.37
Exciting	-.08	-.04	1.12	.00	1.26	.26
Uncluttered	.05	.04	1.11	.00	1.22	.27
Colorful	-.18	-.09	2.52	.01	6.33	<.01
Pleasant	-.07	-.07	1.88	.00	3.53	.06
Fresh	-.02	-.02	.48	.00	.23	.63
Modern	-.04	-.03	.86	.00	.74	.39
Professional	.04	.03	.95	.00	.90	.34
Appealing	.04	.04	1.00	.00	1.01	.32
Strong	-.07	-.04	1.23	.00	1.51	.22
Attractive	-.01	-.01	.29	.00	.09	.77
Overall Appearance	.02	.02	.56	.00	.32	.57

Independent variable: *Kansas City Star*

Dependent Variable	B	Beta	t	R2	F	p
Interesting	-.00	-.00	.05	.00	.00	.96
Exciting	-.03	-.01	.37	.00	.14	.71
Uncluttered	.01	.00	.13	.00	.02	.90
Colorful	-.09	-.04	1.19	.00	1.41	.24
Pleasant	.04	.04	1.15	.00	1.33	.25
Fresh	-.08	-.07	2.04	.01	4.15	<.05
Modern	-.02	-.01	.37	.00	.14	.71
Professional	.02	.02	.55	.00	.30	.58
Appealing	.04	.03	.84	.00	.71	.40
Strong	-.12	-.08	2.26	.01	5.11	<.05
Attractive	-.00	-.00	.04	.00	.00	.96
Overall Appearance	-.02	-.02	.60	.00	.35	.55

Independent variable: *Topeka Capital-Journal*

Dependent Variable	B	Beta	t	R2	F	p
Interesting	.04	.02	.42	.00	.17	.68
Exciting	.08	.02	.51	.00	.26	.61
Uncluttered	.00	.00	.05	.00	.00	.96
Colorful	-.05	-.01	.34	.00	.12	.73
Pleasant	.14	.07	1.80	.00	3.23	.07
Fresh	-.06	-.02	.63	.00	.40	.53
Modern	.02	.01	.16	.00	.03	.87
Professional	-.05	-.02	.63	.00	.40	.52
Appealing	.12	.04	1.21	.00	1.47	.23
Strong	-.12	-.04	1.07	.00	1.13	.29
Attractive	-.08	-.03	.73	.00	.53	.47
Overall Appearance	.11	.06	1.56	.00	2.44	.12

Independent variable: *USA Today*

Dependent Variable	B	Beta	t	R2	F	p
Interesting	-.11	-.07	1.90	.00	3.60	.06
Exciting	-.19	-.07	2.02	.01	4.08	<.05
Uncluttered	-.14	-.09	2.51	.01	6.32	<.01
Colorful	-.19	-.07	1.91	.00	3.64	.06
Pleasant	-.01	-.01	.27	.00	.07	.79
Fresh	-.10	-.07	1.80	.00	3.25	.07
Modern	-.13	-.08	2.19	.01	4.78	<.05
Professional	-.01	-.01	.16	.00	.03	.87
Appealing	-.05	-.03	.90	.00	.81	.37
Strong	-.27	-.14	3.79	.02	14.34	<.001
Attractive	-.08	-.04	1.17	.00	1.38	.24
Overall Appearance	-.07	-.06	1.64	.00	2.68	.10

H5: Increases in age will result in increases on measures of satisfaction with the appearance of the newspaper.

Hypothesis five predicted that as age increased measures of satisfaction with the appearance of the newspaper would also increase. Nine of the 12 regressions in Table 5 provide strong support for this hypothesis. As age increased one standard deviation, perceptions of the newspaper as having an interesting appearance increased .15, significant at less than .001. As age increased exciting increased .09, significant at less than .01. Colorful increased .24 as age increased, significant at less than .001. Fresh increased .10, significant at less than .01. Modern increased .16, significant at less than .001. Appealing increased .12, significant at less than .01. Strong increased .14, significant at less than .001. Attractive increased .22, and overall appearance increased .13, significant at less than .001. There were no significant increases on uncluttered, pleasant and professional.

Strong evidence was provided for the hypothesis that as age increased measures of satisfaction with the appearance of the newspaper would also increase. Moreover, age had the strongest impact of any of the independent variables. Clearly, age had an impact

on perceptions of the appearance of the newspaper. Older readers rated the newspaper higher on appearance variables than younger readers.

Table 5: Regression analysis of age on measures of satisfaction with the appearance of the newspaper

Independent variable: Age

Dependent Variable	B	Beta	t	R2	F	p
Interesting	.00	.15	4.10	.02	16.84	<.001
Exciting	.00	.09	2.54	.01	6.45	<.01
Uncluttered	.00	.06	1.57	.00	2.45	.12
Colorful	.01	.24	6.74	.06	45.48	<.001
Pleasant	.00	.05	1.26	.00	1.59	.21
Fresh	.00	.10	2.75	.01	7.58	<.01
Modern	.01	.16	4.25	.02	18.09	<.001
Professional	.00	.05	1.30	.00	1.69	.19
Appealing	.00	.12	3.18	.01	10.12	<.01
Strong	.01	.14	3.76	.02	14.15	<.001
Attractive	.01	.22	5.98	.05	35.77	<.001
Overall Appearance	.00	.13	3.52	.02	12.37	<.001

H6: Increases in income will result in decreases on measures of satisfaction with the appearance of the newspaper.

Hypothesis six was supported on some of the independent variables. Increases in income appeared to have statistically significant impact on measures of satisfaction with the appearance of the newspaper, as noted in Table 7. As income increased one standard deviation, interesting appearance decreased .10, significant at less than .01.

A larger impact was seen on perceptions of the paper as colorful. On that variable, as income rose, perceptions of the newspaper as colorful decreased .21, significant at less than .001. Strong decreased .13, significant at less than .001. Attractive decreased .06, significant at less than .05. Other dependent variables including exciting, uncluttered,

pleasant, fresh, modern, professional, appealing and overall appearance did not appear to be influenced by income.

Table 6: Regression analysis of income on measures of satisfaction with the appearance of the newspaper

Independent variable: Income

Dependent Variable	B	Beta	t	R2	F	p
Interesting	-.04	-.10	2.75	.01	7.56	<.01
Exciting	-.04	-.06	1.63	.00	2.66	.10
Uncluttered	.01	.04	.96	.00	.92	.34
Colorful	-.14	-.21	5.70	.04	32.54	<.001
Pleasant	-.00	-.01	.26	.00	.07	.79
Fresh	-.01	-.03	.81	.00	.65	.42
Modern	-.02	-.05	1.22	.00	1.50	.22
Professional	-.01	-.03	.90	.00	.80	.37
Appealing	-.00	-.01	.30	.00	.09	.76
Strong	-.06	-.13	3.45	.02	11.87	<.001
Attractive	-.04	-.09	2.42	.01	5.86	<.05
Overall Appearance	-.02	-.06	1.67	.00	2.77	.10

H7: Increases in education will result in decreases on measures of satisfaction with the appearance of the newspaper.

Hypothesis seven posited that as education increased, subscribers would become more critical of the general appearance of the community newspaper, perhaps because of exposure to larger visual metro newspapers. Even though more educated people may be more interested in information to be gained from the newspaper, the reasoning behind this hypothesis was that more educated people would be more aware of the visual sophistication used by larger newspapers and would therefore rate their local community newspaper lower on satisfaction with the appearance of the newspaper. Table 7 provides support for the hypothesis.

Table 7 shows that as education increased, four of the appearance variables decreased as predicted. Perceptions of the newspaper as exciting decreased .08 with each standard deviation increase in education, significant at less than .05. Perceptions of the newspaper as colorful decreased .18, significant at less than .001. Perceptions of the newspaper as modern decreased .11, significant at less than .01. As education increased one standard deviation, perceptions of the newspaper as strong decreased .12, significant at less than .001.

Perceptions of the newspaper as appealing increased .09, significant at less than .001, opposite of the predicted result. The remaining variables including interesting, uncluttered, pleasant, fresh, professional, attractive nor overall appearance appeared not to be influenced by education.

Perhaps the four variables on which education showed significant effects including exciting, colorful, modern and strong, represent the stronger of the appearance variables and may be the ones most critical of the newspaper. The other appearance variables may represent weaker or softer variables, which respondents may have been more likely to be agreeable to. For example, it probably is much easier to agree that a paper looks pleasant, but tougher to agree that it looks exciting, colorful, modern or strong. This seemed to be especially true of more educated people and may help explain why more educated people rated their local community newspaper lower on these dependent variables measuring satisfaction with the appearance of the newspaper.

Table 7: Regression analysis of education on measures of satisfaction with the appearance of the newspaper**Independent variable: Education**

Dependent Variable	B	Beta	t	R2	F	p
Interesting	-.02	-.04	1.22	.00	1.51	.22
Exciting	-.04	-.08	2.22	.01	4.90	<.05
Uncluttered	.01	.02	.42	.00	.18	.67
Colorful	-.11	-.18	5.00	.03	25.01	<.001
Pleasant	.01	.03	.88	.00	.77	.38
Fresh	-.02	-.05	1.25	.00	1.56	.21
Modern	-.04	-.11	2.99	.01	8.91	<.01
Professional	.02	.05	1.27	.00	1.61	.20
Appealing	.03	.09	2.33	.01	5.44	<.05
Strong	-.05	-.12	3.33	.01	11.07	<.001
Attractive	.01	.02	.66	.00	.43	.51
Overall Appearance	.00	.02	.46	.00	.21	.65

Conclusions

This study found increased use of other media, including television, cable television and magazines, had little impact on readers' satisfaction with the appearance of their local daily newspaper. Increased time spent watching television only appeared to result in lower reader perceptions of the paper as having an exciting appearance. This suggests that newspaper readers may view television and newspapers as separate media entities. Or, perhaps those who watch a lot of television do not spend enough time with their newspapers to formulate much of a critical view about the appearance of the newspaper.

Presence of cable television in the home had no impact on the appearance variables. Increased time spent reading magazines resulted in an increase in perceptions of the newspaper as having an attractive appearance. This increase was in the opposite direction of the prediction. Increased time spent reading magazines had no impact on the other 11 appearance variables, again suggesting little influence on satisfaction with the appearance of the newspaper.

Of all the media use variables tested, readership of large visual newspapers had the greatest impact on the appearance variables. Readers of *USA Today* rated their local daily paper lower on four appearance variables including exciting, uncluttered, modern and strong. This suggests that readers of *USA Today* felt that their local newspaper did not live up to the visual standards of *USA Today* in some regards. Readers of the *Wichita Eagle* rated their papers lower on the colorful variable. *Kansas City Star* readers rated their local papers as less strong and less fresh. Readership of the Topeka Capital-Journal resulted in no impact on the appearance variables.

These findings suggest that readership of large visual newspapers may have some impact on satisfaction with the appearance of the local newspaper. Perhaps some of these readers, who get a steady diet of color, large photos, information graphics and stylistic design from the larger newspapers, may come to expect their local papers to keep up visually.

Overall, the demographic variables had more impact on satisfaction with the appearance of the local newspaper than the media use variables. Age had the strongest effect. As age increased, nine of the 12 appearance variables increased. Older readers rated the appearance of their local paper as more interesting, exciting, colorful, fresh, modern, appealing, strong, attractive and better overall. Clearly, age is a significant factor on satisfaction with the appearance of the local newspaper. Not only did age impact more of the appearance variables, the strength of the impact of age was stronger than any of the other independent variables. For example, as age increased one standard deviation, perceptions of the local newspaper as attractive increased .22 on a five-point scale, a fairly large increase. These findings suggest that younger readers may need to see many visual changes before their satisfaction levels increase. Yet older readers seemed to be satisfied with the present appearance of their local newspaper.

As predicted, income impacted negatively on four of the appearance variables including interesting appearance, colorful, strong and attractive. Perhaps this means that

some of the readers with more income were more likely to be exposed to other visual papers such as large metro dailies and therefore were more critical of their local paper's appearance on some of the variables.

A similar pattern seemed to be at work with regard to education. As education increased, decreases were evident on perceptions of the newspaper's appearance as exciting, colorful, modern and strong. Perhaps some of those with more education were also more likely to read newspapers other than their local community newspaper and recognized the appearance differences between large metro papers and their local community newspaper.

However, income and education did not show strong patterns of influence because both had an effect on only four of the 12 appearance variables, suggesting a weaker influence on appearance than age. This may demonstrate that those with more income and education are more concerned with the content of the textual information than the content of the visual information.

Overall, the demographic variables, especially age, showed more influence on satisfaction with the appearance of the local newspaper than any of the other variables. This suggests that age, income and education may have more to do with satisfaction with appearance than any of the media use variables. While there were statistically significant differences evident in the hypothesis testing, it is fairly evident that the independent variables used in the study did not fully explain the variance. The highest R-square on any of the regression analyses was .06, indicating that the independent variable explained only 6 percent of the variance on the dependent variable. It was apparent that other factors must be at work to influence reader satisfaction with appearance of newspapers.

Recommendations

Results from this study show that older readers are more satisfied with the appearance of their local newspapers, while younger readers are less satisfied. The challenge for

editors and publishers is to attract younger readers without alienating older readers. The answer to this dilemma is to implement visual changes slowly so that young readers may become more interested in looking at the newspaper and older readers have time to adjust to the visual changes.

Publishers and editors should work with researchers to determine the demographic variables of their readers such as age, income and education. For example, if most readers are highly educated, have high incomes and are older, the editor and publisher might do well to concentrate more on providing better coverage of issues important to the community and slowly implement visual changes. If most readers have less education, less income and are younger, editors and publishers might want to consider a faster track to using more visuals, larger visuals and more color. In any event, design changes should provide more information, not less. Visuals should not be increased solely to dress up the page, but to provide more visual information to complement the verbal information.

Readership of large visual newspapers and *USA Today* also should be examined. If a majority of a small daily newspaper's readers also read a large visual newspaper or *USA Today*, the editor and publisher should consider increasing the amount of visual communication to better meet the expectations of these readers.

Research should be conducted periodically to assess reader satisfaction with the newspaper concerning visual and verbal communication. Editors and publishers should also recognize that reader tastes may change. Newspaper managers should stay aware of continuing academic research and conduct their own research to determine needs and desires of their readers and how to attract new readers.

Educators should learn from this research that varying research methods may turn up different results and they should recognize that reader satisfaction with newspapers and visual communication is a fairly complicated problem to solve. Educators should stay abreast of research findings on visual communication so that new knowledge can be imparted to students.

Visual communication researchers should expand on the findings of this study to further explore the effects of visual communication. This research shows that characteristics of the readers of the newspapers may have more impact on satisfaction with visual communication than the design of the newspaper. More studies in natural settings concentrating on how demographics of readers and other independent variables impact on satisfaction with visual communication should also be undertaken. Other important dependent variables, in addition to satisfaction with the appearance of the newspaper, that should be examined include satisfaction with and desire for illustrations, maps, color photos and color graphics

Notes

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Television News Images of the Oklahoma City Bombing
and the Fear of Terrorism

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Images of men, women, and children--bleeding, in pain, and in shock; tears of grief on faces of agony; and the "gaping wreck" of the Alfred P. Murrah Federal Building reached millions of Americans watching the evening news on April 19, 1995. News photographers who covered the Oklahoma City bombing said that words could not describe what had happened, that "the pictures really told the story" (Fryklund, 1995, p. 15). Within 24 hours of the blast an estimated 100 television crews and 50 satellite trucks were on the scene, transmitting visuals across the nation and around the world. National as well as local news broadcasts in cities across America told the story to their viewers through images of the tragedy.

How do visual images of terrorism in television news influence our perceptions of terrorism? This study addresses the question through a telephone survey of residents in a mid-sized television market. It explores relationships among visual meaning of the Oklahoma City bombing story, television news exposure, and fear of terrorism.

Relevant literature and hypotheses

Cultivation theory lays the foundation for this study with its assertion that heavier television viewers are more likely than lighter viewers to perceive the

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world as it is depicted on television; often, a "mean and dangerous world" (Gerbner & Gross, 1976; Signorielli, 1990). Studies have linked general television use to conceptions of social reality, for example, perceptions of violence (Gerbner & Gross, 1976), sex roles (Gerbner & Signorielli, 1979; Morgan, 1982; Signorielli, 1989), and many other areas (see Signorielli & Morgan, 1990). Specific program use has also produced evidence of a cultivation effect. Most pertinent to the present study is the relation between television news viewing and fear of crime (McLeod, Daily, Eveland, Guo, Culver, Kurpius, Moy, Horowitz, and Zhong, 1995; Perse, 1990; O'Keefe & Reid-Nash, 1987; O'Keefe, 1984; Tamborini, Zillman, & Bryant, 1984). Viewing local television news, with its saturation of crime news coverage, has a "...significant impact on the perceived level of crime in the city and one's own neighborhood, as well as on the belief that city crime is increasing" (McLeod, et al., 1995, p. 17). It follows from this literature that television news coverage of terrorism may cultivate fear of terrorism.

Much media coverage of terrorism focuses on international terrorism (Crelinsten, 1989; Wittebols, 1991), with an overemphasis on hijackings, hostage taking, and victimization of ordinary citizens (Kelly & Mitchell, 1981; Jenkins,

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1981; Delli Carpini & Williams, 1987). Drama and visual appeal (Larson, 1986), as seen in the Iran hostage crisis, drive the coverage of these events. And attention is given to victims and families (Atwater, 1987, 1989), which allows viewers to identify with them (Wittebols, 1991). In the case of the Oklahoma City bombing, the focus on internationalism set the stage for some of the early coverage. "The media and public's quick assumptions this horrific act of terrorism had Middle East origins quickly channeled the country's grief and anger into hate, bomb threats, harassing phone calls, and acts of vandalism" (Deep, 1995, p. 19). Coverage emphasized visual imagery and a focus on victims and their families (see National Press Photographers, 1995).

Altheide (1985) argues that visuals drive television news coverage. And what those visuals convey to viewers may be a key component in the cultivation process--in terms of memory and meaning. Recent studies show that viewer recall is greater for the more compelling than the less compelling visual images (Artwick, 1996), and that visuals are remembered better in negative messages and in stories containing compelling visual images (Lang & Friestad, 1993; Newhagen & Reeves, 1992). If we assume that the visuals people recall are also those that help them make sense of the world, then the extant research

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suggests that compelling images, which include both graphic scenes and those that convey the human experience through emotion, contribute to people's conceptions of social reality.

Entman (1992) found visual images in Chicago television newscasts to depict blacks as threatening. Graber (1991, p. 17) argues that visuals are "...important stimuli for inference-making," and that their messages lead to "...new cognitions and feelings." The meanings audiences discern from visual images may differ according to frequency of television viewing. Heavier news viewers more often than lighter viewers focus on crime in their meanings of television crime news visuals. They also construct more abstract meanings than do the lighter viewers (Artwick, 1995). For example, when shown an image of a police car parked in front of a brownstone at night, heavier viewers more often than lighter viewers interpreted the visual as a murder scene, or as indicating action involving drugs. Hence, as argued by Debord (1983) and Ewen (1988), the visual image is central to contemporary society, and has taken over from written texts the role of primary educator (cited in Lutz & Collins, 1993).

Differences between heavier and lighter television news viewers and their

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conceptions of social reality underlie the first hypothesis. As previous studies have shown relationships between local television news viewing and fear of crime, heavier viewers are expected to express a greater fear of terrorism than lighter viewers. Separate tests are proposed for television news exposure and local television news exposure as the literature suggests distinctions between the two television news genres.

**H1a: A positive relationship exists between television news exposure
and fear of terrorism.**

**H1b: A positive relationship exists between local television news
exposure and fear of terrorism.**

Visual processing differences between heavier and lighter television news viewers underlie the second hypothesis. As studies have shown differences in visual meaning construction between heavier and lighter viewers, it follows that visual meaning of the Oklahoma City bombing story should differ between heavier and lighter television news viewers.

**H2a: A significant difference in television news exposure exists
between viewers who construct a visual meaning from the
Oklahoma City bombing story and viewers who do not**

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construct a visual meaning from the story.

H2b: A significant difference in local television news exposure exists between viewers who construct a visual meaning from the Oklahoma City bombing story and viewers who do not construct a visual meaning from the story.

Relying on the cultivation literature and research on television exposure and visual processing, the third hypothesis predicts a relationship between visual meaning and fear of terrorism.

H3: Fear of terrorism is higher for viewers who construct a visual meaning from the Oklahoma City bombing story than for viewers who do not construct a visual meaning.

Methods

In exploring the correspondence between the media messages and public perceptions of terrorism, Wittebols (1991) recommends survey methodologies. The present study collected data through a telephone survey to test the hypotheses. A sample of 141 residents of a mid-sized metropolitan community was selected using random-digit-dialing and the first-birthday method of respondent selection. Sixty-two men and 79 women participated in that survey,

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with respondents ranging in age from 18 to 80.

Procedures

Data were collected by journalism students at the University of Hawaii from September 21, 1995 to October 22, 1995, which was five to six months following the Oklahoma City bombing. Three attempts to contact parties at assigned telephone numbers were made at different times before retiring numbers. After confirming a telephone number, interviewers identified themselves as University of Hawaii students who were conducting a study for the journalism department on people's thoughts and feelings about then news. They then asked to speak with the person in the home who had the last birthday. For open-ended questions, interviewers were instructed to record responses verbatim, up to two lines of text. After completing the questionnaire, interviewers thanked respondents for their participation.

Measures

Visual meaning. A response that names something visual, when asked, "What do you think of or see when I mention the Oklahoma City bombing?" for example, "the building," or "the firefighter carrying the baby." Responses were coded by an undergraduate research assistant. A coding reliability check

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on 20 percent of cases demonstrated a 100 percent agreement.

Television news exposure. A self-reported estimated amount of time a respondent spends watching television news on an average day.

Local television news exposure. A self-reported estimated amount of time a respondent spends watching **local** television news on an average day.

Fear of terrorism. A self-reported estimate of respondents' fear of terrorism, using a scale of one through five, with one being lowest and five being highest.

Limitations of the study

A larger sample that extends beyond one metropolitan area would improve the representativeness of the respondents in terms of ability to generalize results to the national population. While diverse, the people of Hawaii may not statistically represent the U.S. population. However, use of random digit dialing and the last birthday method of selecting respondents helps to assure a representative sample of the population from which it was drawn. Self-reported measures of media use may underestimate viewing habits of respondents. However, gathering ethnographic data on media exposure for this study would be an unrealistic expectation.

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Results and discussion

The first set of hypotheses predicted that the more frequently a person watches television news, the greater that person's fear of terrorism. The data support the hypothesis for **local** television news exposure, yielding a significant positive correlation with fear of terrorism ($r=.28$, $P\leq.01$). The data were not significant for television news exposure. At first glance, the finding appears antithetical to what might be expected. Since the bombing was a national news story, and news exposure includes both national and local news, one would expect the heavier news viewers to exhibit greater fear of terrorism. However, the story received heavy coverage on local news programs as well as on national news. Research shows that people identify with local news over network news (Wilson, 1993), and their images may help "...shape the audience's emotional and cognitive responses..." (Entman, 1992, p. 348). As a result, national images appearing on local newscasts may have more of an impact on heavier local news viewers in terms of their perceptions of local conditions.

The second set of hypotheses predicted a significant difference in television news exposure between respondents who did and did not construct a visual meaning from the Oklahoma City bombing story. Findings supported the

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hypothesis for television news but not local television news. T-tests revealed that the 20 survey respondents who constructed a visual meaning were lighter television news viewers ($t=-3.24$, $P\leq.01$). This finding may be indicating visual desensitization for heavier news viewers. Griffiths and Shuckford (1989, p. 87) propose that desensitization occurs when "...stimuli no longer remain important, stimulating, and/or novel..." Heavier viewers' repeated and cumulative exposure to violent images on television news may act to decrease the importance, stimulation, and/or novelty of the images to these viewers. As a result, visual images may not have as great an impact on visual meaning for heavier viewers as they would on lighter viewers.

The third hypothesis predicted that respondents who constructed a visual meaning from the Oklahoma City bombing story would have a higher fear of terrorism than those who did not, but the data did not support the hypothesis. The visuals made an impact on lighter viewers, in that they constructed visual meanings of the bombing story five months after the event. But the visuals did not appear to contribute to fear of terrorism for those lighter viewers. This suggests that if visuals play a role in cultivation, more extensive and repeated exposure to them may be key to their impact on social reality construction. For

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heavier viewers, the visuals may have quickly translated to fear of terrorism. Then, just as quickly, those images may have lost their impact on the meaning of the event. The meanings heavier viewers were more likely to construct from the bombing focused on reaction rather than a visual image, for example, "it could happen anywhere," "terrible," "anger," and "sadness."

Conclusions

This study explored the relationships among visual meaning construction for the Oklahoma City bombing story, television news exposure, and fear of terrorism. In line with what cultivation theory predicts, people who watch more local television news expressed a greater fear of terrorism than the lighter viewers. Heavier viewers were not, however, more likely to construct a visual meaning from the Oklahoma City bombing story, despite the story's widely broadcast and published compelling visual images. Instead, respondents who described a visual image when asked about the Oklahoma City bombing story were lighter television news viewers, indicating a greater visual impact on lighter viewers over time.

"Wearout" or desensitization may explain this finding. The concept of wearout is drawn from advertising research and is the potential result of

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overexposure to television commercials. Memory for an ad can improve with increased exposure, but after a certain point, viewers may stop paying attention and memory could decline (see Hitchon & Thorson [1995] for a discussion of research on wearout). A similar effect could apply for heavier television news viewers when it comes to visual images repeatedly broadcast on stories such as the Oklahoma City bombing. They may become saturated with the visuals, after which point the heavier viewers rely less on visuals to construct their story meaning. On the other hand, lighter viewers would see the visuals with less frequency, being less likely affected by the wearout phenomenon.

Desensitization may be considered related to wearout, with heavier viewers becoming desensitized after repeated and cumulative exposure to particular television news images. The stimuli would no longer remain "important, stimulating, and/or novel" (Griffiths & Shuckford, 1989, p. 87). While these images may make an impact on heavier viewers in the short-term, long-term visual impact may be weaker as these viewers are faced with processing a continuous stream of visuals. Even a compelling visual may have a limited "shelf life," as there is always another strong visual appearing on the tube to take its place. Hence, when asked about the meaning of a five-month-

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old story, the heavier viewer may think about the more abstract event rather than the specific visual images related to the story. This idea is supported by research on semiotic meaning and television news (Artwick, 1995), in which heavier viewers constructed more abstract meanings than lighter viewers for crime-specific visuals, rather than focusing on "the thing" itself. For example, when shown an image of a police car parked in front of a brownstone at night, the heavier viewers interpreted the visual as a murder scene, or action involving drugs, rather than simply a squad car.

Returning to the question posed earlier--How do visual images of terrorism in television news influence our perceptions of terrorism? For lighter viewers the compelling visual images appeared to have a long-term impact on the meaning of the story. Their meanings focused on images of the blown-up building, the children, and Timothy McVeigh. Heavier viewers' meanings instead focused on reaction to those visuals, which is a step toward social reality construction. This study showed that heavier local news exposure relates positively with fear of terrorism. For heavier viewers, the images' impact may be immediate, moving from visual event to interpretation. That interpretation

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may then be stored and later retrieved to construct social reality--in this case, fear of terrorism.

Future research in this area should focus on short-term visual meaning, examining effects of compelling images shortly after they are broadcast, in order to address the role of visuals in the cultivation process and their relation to social reality construction.

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American Gothic and the Impact of Digital Video
Technology on the Visual Communication of Television

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American Gothic and the Impact of Digital Video
Technology on the Visual Communication of Television

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August 1996

Abstract

This case study of *American Gothic* explores the impact of digital technology on television production. A hermeneutic (interpretive) methodology is employed for data collection, and qualitative methods are utilized for analysis. Fourteen findings are revealed, and these are collapsed into four categories concerning the impact of digitization on: (a) technologies, (b) jobs, (c) production phases, and (d) creative flexibility. Overall, creative thought remains primary, while technology secondarily provides useful tools for the creative thinker.

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American Gothic and the Impact of Digital Video
Technology on the Visual Communication of Television

Video is the most pervasive medium of visual communication, and mass communication in general, the world has known, whether played on a computer, tape recorded, or broadcast. Those who produce programming wield a powerful influence on the medium's consumers. The study of video production is therefore an important pursuit in better understanding visual communication.

Television production is undergoing a digital revolution. The binary coding of both aural and visual information is changing the nature of the production process. New technologies emerge almost daily that affect this field.

To assess the impact of these new technologies, an analysis of what is happening at the leading edge of TV production is valuable. One of television's most highly acclaimed, "cutting edge" programs is *American Gothic*. This show embodies much of what is changing, and what is not changing, with the digital video revolution in visual communication. A case study of this exemplar is therefore beneficial in addressing the research question: How does digital video technology impact the television production process? The answers to this question are significant for both practitioners and educators to apply in the visual communication field of TV production.

Literature Review

The advances in digital video have sparked many writings. Some authors address the technical aspects of these new media.¹ Some describe hardware and software.² Some examine the applications and uses of digital video.³ Some discuss approaches to digital production.⁴ Others look at issues of policy,⁵ finance,⁶ culture,⁷ globalization,⁸ and jobs.⁹ To date, no scholar has published an analysis of the impact of digital video technology on the process of production. This study attempts to fill that void.

Methodology

The data collection and analysis for this investigation follow the guidelines of qualitative, inductive, and interpretive research.

Data collection

Hermeneutic cycle. This study utilizes the hermeneutic methodology explicated by Lincoln and Guba.¹⁰ Briefly, the researcher conducts depth interviews and observations, moving in a circle from "respondents" (interviewees) to "constructions" (concepts formulated through interviews). Specifically, the researcher engages a respondent in conversation about the topic (in this case, the impact of digital video) with open-ended questions that allow the relevant concepts for that respondent to emerge; and the researcher observes the respondent engaging in activities related to the topic (editing, mixing, etc.). The researcher then formulates initial constructs of the phenomenon being investigated.

Next, the researcher moves to another respondent and continues the process until consensus emerges, verifying the data and constructs. The researcher moves cyclically back to the first respondents to check that the constructs found later in the cycle are consistent with those at the beginning. This methodology, then, interweaves data gathering and processing.

Inductive and qualitative. This process is inductive and qualitative. It evolves from the ground up. It does not begin with an *a priori* theory to be deductively tested. Indeed, there is no theory of digital video, perhaps because it is a relatively new entity (though some scholars have applied existing communication theories to digital video, such as Rogers' "Diffusion of Innovations"¹¹). The objective of this study is to learn "what's happening out there" as digital video is increasingly incorporated into productions, rather than testing if "what's happening out there" fits a pre-determined theory. For this reason, this investigation is purposively inductive and qualitative, using open-ended interviews with respondents.

Respondents. Four respondents were interviewed for this case study, and one site observation was conducted.¹² The respondents are knowledgeable practitioners of digital video in production. Additionally, observational research was employed to collect data concerning the "hands-on" use of digital equipment.

Data analysis

Interwoven with collection. To analyze the data, Lindlof's techniques are employed.¹³ In keeping with Lincoln and Guba's notion that data collection and processing are interwoven,

Lindlof observes that data analysis is "a process that is continuous throughout an entire study.... The process is... cyclical, with fieldwork, data-text translation, coding, and conceptualizing all going ahead at the same time, albeit at different rates of progress."¹⁴

Data reduction. The data must be reduced, both physically and conceptually. Physical reduction "means being able to sort, categorize, prioritize, and interrelate data according to emerging schemes of interpretation."¹⁵ Conceptual reduction means:

The qualitative analyst must devise a conceptual structure. This is never easy, because the analyst must be careful not to impose an external system on the data. Ideally, the concepts used in an analysis grow naturally out of an interaction between the kinds of action noted in the field and the theoretical ideas with which the analyst began the study.¹⁶

This method of analysis calls upon the scholar to categorize the information into emerging areas of conceptual similarity, then to examine the categories to draw conclusions.

Reporting. The data for this case analysis are presented using Geertz's process of "thick description."¹⁷ Briefly, this involves rich, contextual, holistic reporting that places the readers "at the scene" in order to supply them with the information they need to judge the validity and applicability of the research. Additionally, thick description provides the evidence used to draw the findings of the study, which are presented later.

The Case of *American Gothic*

American Gothic is produced by Renaissance Pictures and Gothic American Productions, with Universal TV. It is a high-budget (over US \$1 million per episode), prime time network drama, loaded with special effects. The setting is a fictitious Fulton County, South Carolina. The premise is that a young woman, Merlin, was murdered by the Sheriff, Lucas Buck, who raped her mother. The mother gave birth to Caleb, who is the deceased Merlin's half-brother and the son of the evil Sheriff. Caleb is now an adolescent, and Merlin returns "from beyond" to help him and to haunt Sheriff Buck, who himself possesses metaphysical powers. Merlin, the personification of good, and Buck, the personification of evil, engage each week in a classic battle for Caleb's soul.

An overview of the production process, from scripting to on-line editing, demonstrates how digitization changes some elements, but not others. On average, an episode takes about five weeks to complete (sometimes longer) from initial scripting through final editing. Usually, at least three episodes are simultaneously in production, at various stages in the process. Preproduction planning accounts for about a week, shooting takes nine to ten days, off-line editing lasts about one week plus a few days, and the on-line edit, with music and sound, takes about another week plus a few days. As will be seen, digital technology plays a vital role in keeping this rather tight schedule flowing.

An episode begins with a story idea and scripting. The writers meet in an office at Universal Studios in Los Angeles.¹⁸ The scripts then go to the production office in Wilmington, North Carolina, where the principal shooting is done (even though the show is set in South Carolina).¹⁹

Image

The program is shot mostly on 16 millimeter film, with some scenes on 35 millimeter. The film is developed using a process called "prep for telecine": The negatives are developed specifically for the colors, saturations and intensities of digital videotape rather than for theatrical film projection. These negatives are transferred to the Digital Beta video format (DigiBeta), and the sound is synchronized and added. The transfer is done at Anderson Video at Universal, the company that also performs the on-line edit. From DigiBeta, 3/4-inch video copies are made and sent to the off-line editors at L.A. Digital Post.

The off-line editing assistants digitize the video and audio from 3/4-inch into one of the company's Avid non-linear editing systems.²⁰ Using a relatively low image resolution to save drive space and rendering time,²¹ they create the editor's cut, which is then viewed by the director for his/her cut, which is also performed on an Avid. Next, the producers' cut is made, and when everyone is satisfied, the edit decision list (EDL) is downloaded from the Avid and sent to the on-line editing house, along with a 3/4-inch video copy for the on-line editors to view if there are questions. Anderson Video conforms the on-line edit from the EDL, using the original DigiBeta footage for broadcast quality.

Effects

Visual effects deserve special mention because *American Gothic* makes heavy use of them. While the editors begin cutting a show, Dean Barres, one of the producers, digitizes the images of scenes that require effects into Adobe Premiere files (usually no longer than 10 seconds) and sends them via a fiber optic Integrated Systems Digital Network (ISDN)²² to Northwest Imaging in Vancouver, Canada. The cost is less than one dollar per minute. Attached to each piece of footage is an annotated file, a sort of electronic "post-it" note, explaining the desired effect for that piece of video. Northwest Imaging renders each effect and sends it back in the Adobe Premiere format via ISDN for the team at Digital Post to view. If changes are needed, the process repeats until the final effect is approved.

Northwest Imaging then renders the final effect onto DigiBeta and ships the tape to Anderson Video for the final on-line edit. At the same time, the company sends to Digital Post via ISDN a final, low-resolution, Adobe Premiere version of the effect to incorporate in the off-line edit. There is one exception to this effects process: When Merlin appears and disappears in a "molecular" effect, that is rendered at Vision Art in L.A.

Prior to digital ISDN technology, the producer would have shipped the video segments requiring effects overnight to Northwest Imaging, which would then overnight a VHS copy of the effects back to the producer to proof. Shipping original tapes is still necessary, of course: Northwest Imaging requires a DigiBeta version of the scenes to render effects back onto DigiBeta and

overnight the tapes to Anderson Video. What is different with the convergence of digital video and ISDN fiber optics is that low resolution video can be transmitted nearly instantaneously between L.A. and Vancouver, allowing the creative decisions to be made faster than before, while the tapes are still in the mail. This, in turn, allows the creative team time to explore more options with special effects.

Sound

Although the title of this paper focuses on visual communication, audio is as important to television as is video. In fact, pictures and sounds are often inseparable, one relying on the other for reinforcement or clarification. A discussion of sound is therefore integral to this investigation.

On location, a Nagra magnetic recorder is used for synchronized sound recording with the film. Many productions make a back-up recording on digital audio tape (DAT); *American Gothic* does not. The producers prefer replacing any necessary lines with automated dialogue replacement (ADR), or "looping": a process in which the actors watch themselves on screen and re-speak lines of dialogue in sync with their images.

As the video is being posted, Digital Sound and Picture in L.A. processes the sound using a Doremi Labs Dawn II system. The Nagra dialogue recordings are cleaned and any necessary ADR lines are looped in North Carolina. This looped dialogue is recorded on DAT and shipped to Digital Sound and Picture for the on-line edit. Meanwhile, the dialogue may also be transmitted as a digital sound file via ISDN to Digital Post for inclusion in the off-line edit,

as well as to Digital Sound and Picture as a backup for the on-line edit in the event the DAT does not arrive.

Foley sound (a Foley artist watches the screen and creates sound effects, such as footsteps and clothes rustling, in sync with the images) is added at Universal studios. Other sound effects (SFX) are taken from any number of digital SFX libraries. All the sound is synchronized to low resolution dubs and/or digital files of the video footage. The final sound mix is conformed onto digital audio tape (DAT), which is also sent to Anderson Video for the final, on-line edit.

Although the sound department creates, records, and mixes the final soundtrack, off-line editor Tom Moore drops in some stock sounds and music where appropriate on temporary tracks ("temp tracks" viewed by the directors and producers for creative decision-making). For example, if a scene requires a gun shot, Moore edits in a gun shot from a sound effects library. If the director and producers approve that, the sound department creates the actual gun shot for that scene. Or if the director envisions a scene playing with classical music, Moore edits classical music to that scene from a music library. If that is approved, the composer creates the actual score. In this way, Moore and the other editors are able to give the directors and producers rough cuts with more sounds and music than before, allowing the creative team to "get an idea" of what the episode might sound like, as well as look like. Prior to digital technology, Moore only had time to edit synchronized dialogue tracks with film work prints.

Music

Music scoring deserves special mention because the process employed for *American Gothic* is influenced greatly by digital technologies. The composer lives in Michigan. He is shipped a videotape dub of the final edit (without color correction or SFX). He composes the score for that episode and records it on DAT (with time code added via Midi technology for synchronization with the image). He ships the DAT recording to Anderson video for conforming in the final edit, and also sends an electronic file via Ed-Net, which uses ISDN lines, to Digital Post to hear and incorporate into any off-line editing that remains (though by this time the off-line is usually finished--it is the off-line edit from which the composer usually works). This process would not be possible without digital file creation and transmission.

Findings

The findings of this study are pulled together using Lincoln and Guba's method of "emerging consensus" and Lindlof's method of "conceptual structure," in which the observations and respondents' statements reveal similarities on certain points. Specifically, 14 items emerge as consistent across respondents, and these items are organized into four broad categories of impact: technologies, jobs, production phases, and creative flexibility.

Impact on Technologies

The digitization of information impacts upon a number of technologies.

1. File transfer. Once aural and visual information is converted to a binary file, that file can be processed and transmitted in any number of ways. In the case of *American Gothic*, video files go from California to Canada and back via ISDN lines, and are altered with software to produce special effects. The composer records on DAT, but the music eventually is mixed onto DigiBeta. Different technologies and storage formats may be employed in the digital realm because binary information is relatively simple to move from one medium to another.

2. Manipulation. The ability to manipulate images and sounds digitally also impacts production. Specifically, digital video systems, such as the Avid, can darken images, brighten them, enhance their color, remove their color, and other processes, which earlier required days and weeks at a film lab. These can be set up at the time the video is digitized, or they can be rendered after the shots are in the system. Sound can be filtered, equalized, cleaned, and edited with the click of a mouse. Audio is represented graphically on the computer screen, allowing the editor to see it and pinpoint with great precision the elements to be changed or cut.

It is important to note that this ability to manipulate pictures and sound does not substitute for careful set-up and shooting. Image manipulation takes time to program and render, and sometimes the effects do not look as believable as intended. Filtering out *undesired* audio frequencies (e.g., pops, hisses) may require losing some *desired* frequencies (e.g., the treble of a flute). The ideal remains to set up, light, expose, frame,

compose, and shoot well, along with recording clean, clear, full-fidelity sound, so that the recorded footage is the best it can be without requiring digital manipulation in postproduction.

3. Quality. Digital video does not suffer generation loss, as does analog. In the analog world, each copy of a tape suffers some degradation of signal clarity, resulting in more "grain" in the image and more "hiss" in the sound. After a number of generations of dubs, the picture and sound are quite poor compared to the original.

In the digital world, a series of ones and zeroes is all that gets transferred from generation to generation, rather than analog waveforms. In theory, the thousandth copy is as good as the first. This raises legal and ethical problems of program piracy, but for the focus of this study--the impact of technology on production--digital information allows anyone in the process to work with images and sounds that are of equal quality, no matter how many times they are copied. (Of course, that quality depends on the format from which the digitizing is done: whether a DigiBeta master or a 3/4-inch dub.)

Digital technology allows longer storage of data, and hence better quality over time, than analog technology. Analogous waveforms recorded on a tape degenerate over time, resulting in less resolute images and poorer fidelity sound; digital signals--being merely ones and zeroes--hold up longer. Of course, the digital tapes themselves are subject to wear and damage, but under normal circumstances, digital technology offers longer life and better quality than analog.

At the on-line site, high-end digital equipment even allows some error correction. The machines assume there are numerical errors in the data streams, and they are programmed to seek them out and correct them. The result of all this digital technology is an improvement in the resolution and fidelity of both the rough cuts and the final program because the images and sounds have suffered no quality loss from the original, and in some cases may have even been improved.

Impact on Jobs

Digital technology causes some convergence of job assignments that were more rigidly delineated in the past.

4. Partial merging. Because of the ease and time savings afforded by digital technology, the boundaries between certain categories of employment blur, at least partially. Each of the respondents mentioned that s/he had the opportunity to know more about other areas of production than would have been the case prior to digitization. Producer Barres works more closely with special effects than before because of his ISDN link to the special effects company. Associate Producer Billy Crawford performs more production coordination than before because of the many different places around North America where individual production elements are generated (filming in North Carolina, effects in Canada, music in Michigan, etc.). Editor Moore works much more with audio than in previous years, dropping in sound effects and music on temp tracks. Assistant editor Cindy Fret has also learned more about sound because she spends more time collecting sounds and music--about 10 to 15 percent of her day--

and less time keeping track of frames of film and bits of magnetic sound ("mag") to be cut out or spliced back into a scene.

It is important to note that this convergence of jobs is limited. Each person learns more about other specialties, but certainly does not become expert in those areas. Barres is not a special effects artist; Crawford is not a production coordinator; Moore is not a sound editor; Fret is not a sound assistant. But each has crossed a little bit into these areas because digital technology, with its speed and flexibility, makes this "partial convergence" possible. In fact, it makes convergence necessary because directors and producers can demand more elements in the first cuts of programs.

5. Position shifting. The respondents agree that the time-savings of digital technology are a tremendous advantage in allowing editors to generate more options for shot sequences, effects, and sounds. However, because an editor can do more faster, there is the risk of fewer jobs for editors. Most episodic, hour-long, prime-time dramas on American television, such as *American Gothic*, have three program editors, plus a "trailer" editor (the editor who edits all the promotions for the program). At any given time during the production year, at least three programs are "in process," a strategy that calls for three editors to be at various stages of editing three different programs simultaneously.

However, the respondents noted that at some programs (not *American Gothic*), particularly those at Warner Brothers Studios, the editing staff has been reduced to two program editors and a

trailer edit. This was confirmed by a phone call to the popular drama series *ER* at Warner Brothers Television.²³ This reduction in editors is a direct result of digital technology. Because systems like the Avid allow edits to be made more quickly than on film or on analog videotape, a single editor is able to perform more edits per day than before, allowing for a reduction in staff.

It must be noted, though, that most editors--including those at *American Gothic*--disagree with this plan. They prefer that the time-savings of digital editing be invested in additional, creative options in postproduction, rather than in a reduction of the workforce. Also, the time savings do not always equal one full-time position, but only a partial position. The trailer editor on *ER*, for example, is sometimes called to assist with editing an episode in order to meet a deadline. Additionally, the two program editors put in more overtime some weeks than their counterparts on shows with three editors. For these reasons, programs such as *American gothic* continue to employ three program editors.

While it might be tempting to conclude that digital technology results in fewer editing jobs, this may not be the case. The technology may also allow more individuals and start-up companies to get into the video production business, at least at the low-end, because the technology is able to render more and more professional-looking programs at lower and lower cost. This could generate more new jobs for editors who can use digital technology. An empirical study is needed to address this issue, and that is beyond the scope of this study.

6. Shooting blue. Digital technology is capable of rendering professional key and matte effects. Instead of painting backdrops, constructing facades, or going on location, it is increasingly possible for directors to shoot their actors on relatively small, blue (or green or black) sets and digitally composite the background and furniture into the image. On *American Gothic*, a single image might consist of four or more layers of composited video.

This has the possibility of impacting some additional jobs, including lighting directors, scenic designers, carpenters, painters, and others who traditionally work on "real" sets and locations. They might experience a reduction in work if more shooting is done on blue stages for digital compositing in postproduction. However, one might also argue, as with editors, that because digital technology makes more production options available in less time, there could be a greater need for design experts. Again, a separate empirical study is needed.

7. Location. Digital technology also permits people from various locations to work on a given production. It is less necessary than before for each person to be located physically in the same place. As described previously, for *American Gothic* the writing and posting are done in California, the shooting in North Carolina, the effects rendering in British Columbia, and the music scoring in Michigan.

Impact on Production Phases

Digital technology impacts the production process by influencing creative decision-making to some extent and by allowing different phases of program creation to merge somewhat.

8. Preproduction. The planning phase of a production is critical to its success, regardless of the technology employed. Creative thought, strategies for shooting, scene breakdowns, budgets, schedules, and so on are vital, no matter the extent to which digital technology is utilized. Computer technology impacts the preproduction phase only to the extent that those involved understand the capabilities that it brings to the production.

Specifically, the producers and directors might choose to use some particular special effects because they know those effects are possible in the digital world. They might choose to shoot some scenes "blue" and digitally composite the background or other layers of video, rather than construct a background or go on location to shoot (or not--time and money remain critical factors here, along with the capability of the technology). They might choose to allow extra time to shoot more coverage than they would have allowed previously because digital editing makes it faster and easier to arrange and manipulate more images. In sum, digital technology impacts the preproduction phase to the extent that the creators are aware of what it can do. The creative process of planning the best way to tell a story remains as it has always been: a thought process that technology cannot replace.

9. Production. The actual shooting of a program is impacted by digital technology to the extent that the shots

planned in preproduction are carried out. An image is framed and composed with a special effect to be added; a blue screen is set up and lit for filming; additional coverage is recorded for more shot options in editing. The production phase also merges to some extent with the postproduction phase because digital equipment makes it easy to begin editing as soon as the first day of shooting is processed (i.e., the film is developed, transferred, and dubbed for off-lining). Editing--which conventionally belongs to the postproduction phase--begins nearly simultaneously with the production phase and continues throughout the shoot, as well as after the shoot is complete. The phases are not as linear as before.

10. Postproduction. The respondents agree that this is the phase most changed by digital video technology. The findings reported in the "impact on technologies" section above occur principally at this stage. The most-noted advantage is time savings: Digital technology allows sounds and images to be arranged, re-arranged, and manipulated (trimmed, expanded, colored, equalized, etc.) faster than before (once the digitization has been done), and this allows more time to be creative in experimenting with options (effects, shot sequences, sounds, etc.).

Impact on Creative Flexibility

The overarching change that digital video technology brings to the production process is an increase in creative flexibility: the opportunity to spend more time experimenting before "locking" the final edit.

11. Ease. The ease with which shots and sounds can be maneuvered contributes to this creative flexibility. It can be frustrating in the analog to world to wait for the machinery to move tapes back and forth. Additionally, the moving parts of analog tape machines are subject to breakdown from use. Digital information recorded on a hard drive or other storage medium allows random access, eliminating the need to wait for machines to roll in order to play or edit a video segment. Also, fewer moving parts result in fewer mechanical equipment breakdowns.

(Electronic breakdowns, such as computer and disk drives "crashing," are another matter.) Digital video editors are likely to experience less frustration than analog editors because of the ease with which the equipment can produce the desired edits.

12. Speed. Random access allows instantaneous edits and changes to edits. The increased speed with which an editor can perform a task frees up additional time to experiment with multiple versions of image sequences and audio layers. Speed is another factor that leads to creative flexibility.

13. Cost. Digital technology may also reduce the cost of some editing, effects generation, and sound mixing. However, the technology is only one factor--along with time and difficulty--in determining cost. A producer or director must weigh all the variables in deciding the best way to create a desired setting, effect, or sound.

For example, say a script of *American Gothic* requires two actors to engage in dialogue while driving down a street. Does the director choose to have the actors sit behind the facade of a

car in a studio with a blue background, or does s/he rig the facade to the back of a production truck and drive down a real street, or does s/he mount a camera on a real car and have the actors actually drive? Here are just some of the factors to consider in deciding which option to use. (A) How truly realistic must the scene look (i.e., does the production "style" require genuine authenticity, or will a matte shot suffice)? (B) How much time is available for set-up and execution (i.e., is there time to hire and rig a truck or car, or is there time to render a matte effect)? (C) How are the other scenes around this car scene to be shot (i.e., are they interiors or exteriors, will they be shot on the same tape or film format, and how well does lighting, color, and overall image quality have to match)? (D) Which option will get the best performance from the talent (i.e., will the actors perform better if they are really in a car or only pretending)? (E) How much does each option cost (i.e., does setting up a blue screen studio shoot and compositing a background cost more or less than hiring and rigging a truck or car on location)?

This last option depends on the nature and length of the scene. If only a few seconds or minutes are needed, it might be cheaper to "shoot blue." If an entire 10-minute sequence is required, it might prove more cost effective to shoot the scene either on a production rig or in a working car because a longer scene requires more shot angles and edits, which require more time to render on a computer and therefore increase the cost. In short, if it is cheaper and fits the aesthetic style of the

production to use digital effects and composite the desired scene, the director uses digital effects. If it is cheaper and fits the show's style to work with actual sets and backdrops, then the director uses that option.

14. Thought remains key. Although digital technology brings ease, speed, and sometimes cost savings to the production process, the creative process of generating ideas and solving problems remains the most significant task. Editor Moore states: "The Avid is a tool to put images together. It does some cool things with sound, too, but it is only a tool. The goal is still to put images together coherently." That goal requires human thought to accomplish, not technology.

For example, if Moore is faced with cutting between two shots in which the action does not match, he must be creative in finding a way to maintain continuity, such as cutting away to a reaction shot of a different character. This thought process is the same whether editing film, analog video, or digital video. Digital video just makes the edit easier and faster to perform, allowing greater flexibility in trying different options to solve the problem.

Additionally, Moore notes that he can "stay more focused on the story" because he does not have to wait so long for decisions. He explains, "It used to be you'd have to wait a week to get a dissolve back from a film lab. Meanwhile, you'd move on to another project. Now, the dissolve is right there on the computer screen and the director can make a decision while I'm still focused on that scene and that story."

Conclusion

Digital technology allows producers, directors, and editors more options in creating their stories than ever before. However, the technology rarely dictates those options: It merely offers new and different alternatives for shooting and editing. The human element of thought remains the key to successful production.

Regarding the preeminence of thought, some respondents indicated that digital technology really does not change anything, referring to the conceptual aspects of thinking through a production from concept to final edit. At the other end of the spectrum, some stated that the technology changes everything, referring to the practical, skills-oriented tasks of production, especially editing. As is often the case with extremes, neither seems wholly accurate, given the findings of this study. Digital technology changes some things, but not all things.

Clearly, the creative process remains paramount. There is no substitute for creative vision and planning in terms of what shots and sounds to use and how to mix and sequence them to tell a story most effectively. Technology is secondary to this task, though it does impact the creative process at least somewhat. In order to utilize the technology to its greatest advantage, the creative team should know its capabilities (e.g., effects generation, speed in editing, ease of working with sound, etc.). Understanding these digital advantages may influence the approach to planning some scenes.

Digital technology is a tool: a device that assists in creating a program. It can offer more visual and aural options than other technologies, and it can do so more quickly, and sometimes more cheaply, thereby offering its users greater "creative flexibility." It is this concept of creative flexibility that emerges as the overarching principle to summarize the impact of digital video technology on the visual communication of television. Digital technology takes second place to creative thought, but as a tool to assist the creative thinker, it affords more choices in less time with relative ease and often with less expense.

Endnotes

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¹⁷ Clifford Geertz, "Thick Description: Toward an Interpretive Theory of Culture," in *The Interpretation of Cultures: Selected Essays*, ed. Clifford Geertz (New York: Basic Books, 1973).

¹⁸ The Universal Studios complex is actually in Universal City, part of the urban sprawl of the Los Angeles area. For simplicity, throughout this paper, companies located in the L.A. area are simply noted as being in Los Angeles, though they may be in any one of a number of cities in the greater L.A. basin.

¹⁹ *American Gothic* started as a non-union production, and North Carolina offered the less expensive, non-union labor, as well as

the backdrops, necessary to get the production underway. Even though the show has since "gone union," the principal shooting, both location and studio, remains in North Carolina.

²⁰ The Avid is one of the two most popular, professional, nonlinear, digital editing systems in use in America today (the other is Lightworks). For information on the Avid, the reader may contact corporate headquarters at: Avid Technology, Inc., One Park West, Tewksbury, Massachusetts 01876, phone 800-949-AVID (2843), fax 508-640-1366.

²¹ Currently, the editors of *American Gothic* use Avid Resolution (AVR) 4e. This compares to the highest resolution level of Avid software used at the time of data collection (version 5.51)--AVR 27, which uses a 4:1 compression scheme and meets the standards for the Beta SP video format in quality.

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Environmental Coverage Priorities: A Michigan newspaper comparison

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ABSTRACT

Environmental Coverage Priorities: A Michigan newspaper comparison

Do journalists write about environmental issues scientists think are important?

A study of nine daily Michigan newspapers compared the newspapers' coverage of these issues with a scientific analysis — known as the Michigan Relative Risk Analysis Project — that prioritized the most important environmental issues.

The newspapers generally agreed with scientists in their priorities on environmental issues, but disagreed considerably on specific issues, such as environmental awareness, solid wastes, habitat modification and ozone depletion.

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INTRODUCTION

The purpose of this research is to see if journalists write about environmental issues that scientists think are important. To test this, our study compared the environmental coverage in nine daily newspapers in Michigan with a ranking of the most important environmental issues by scientists, known as the Michigan Relative Risk Analysis Project (MRRAP).

In July 1992 the United States Environmental Protection Agency (EPA) and the Michigan Department of Natural Resources (MDNR) published the results of a qualitative scientific project designed to pinpoint the most serious environmental risks to residents of Michigan. The MRRAP was funded by the EPA and administered by the MDNR as a benchmark study. It asked researchers from a variety of scientific disciplines to analyze environmental risks.¹

Its purpose was to provide a general risk consensus and rank the threats according to how each affects the quality of life in Michigan. Landfills and toxic waste dumps were not as high of a priority as lack of land use or lack of environmental awareness, for instance. Twenty four environmental issues were ranked into four categories of risk, High-High, High, Medium-High and Medium (See accompanying table).

In the highest category of risk — the High High category — were listed six risks, including global climate change and absence of land use planning. In the second highest category — High risks — were biodiversity/habitat modification and ground water and surface water toxins. Hazardous and radioactive wastes were in the Medium-High category. And acid deposition and accidental releases of chemicals into the environment were in the lowest — Medium — category.

How journalists cover these issues is important because much of what the public knows about environmental issues comes from the mass media, including newspapers. If the environmental print journalist is to serve a useful mass communication purpose, then presumably the types, amount, and space of environmental stories published should be similar to the ranking of risks by the MRRAP study.

THEORETICAL FRAMEWORK

First, we reviewed several bodies of research about how the public views environmental issues found in the print media and then we briefly examined how factors, such as agenda setting and the notion of reporter source interaction, influence its coverage.

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In 1971, for instance, Murch found the public at large believes there is a solution to environmental problems and that much of the information they receive about the issues comes from television, magazines, and newspapers.² To reach these findings, Murch distributed 300 questionnaires to a random sample of Durham, N.C. residents. He received nearly a 75 percent response rate. He sought to determine the public's perception of the seriousness of environmental issues. His study found only 13 percent viewed environmental problems as a serious threat to their own community, compared to 74 percent who saw the problems as a serious threat nationally.

Murch conducted a content analysis of the local Durham newspapers. During the period of his survey, over a third of all the copy devoted to environmental coverage by the Durham newspapers dealt with national problems. Half of it focused on either national or the global environmental issues. Less than 10 percent of that copy dealt with local environmental issues.

Atwater³ found people gain environmental information in a similar manner to how they retrieve information about politicians: Through what newspapers choose to present to them and what they select to read. Atwater noticed little attention was given to why and how readers select environmental stories.

He examined the coverage of six of the most covered environmental stories in the three largest daily newspapers serving Lansing, Mich. He analyzed a two-month period from Oct. 5 to Dec. 5, 1983, using only the front sections of the Lansing State Journal, the Detroit Free Press, and The Detroit News. The six environmental subjects that received the most coverage were: 1) disposal of wastes; 2) quality of water; 3) hazardous substances; 4) quality of land; 5) quality of air; and 6) wildlife conservation. He employed three judges to determine which story fell under each of the six topics.

Following the content analysis, he randomly selected telephone numbers in the Lansing area and asked respondents on a one to 10 scale how important he/she viewed each of the six topics. A zero constituted no importance, while a 10 meant very important. He also asked them how important they believed the news media perceived each topic. Using a series of nine questions, Atwater found a mean rating of 8.3 for those who felt environmental stories mattered in their life versus a 4.5 mean rating for those who used the information strictly for conversation purposes. The majority of those surveyed relied on the media to inform them about

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environmental issues.

Atwater, Novac and Sandman⁴ found in 1971, however, newspapers did not account for the most often-used sources of environmental information. Their sample included 158 undergraduate students who were supplied with a list of 15 possible sources of environmental information such as radio, television, newspapers, interpersonal communication, word of mouth, and campus discussion groups.

They presented eight environmental issues they deemed important and found on all eight issues, students received the majority of their environmental news from non-mass media sources such as teachers, other students, and word of mouth. Forty five percent said mass media were their chosen source, while 55 percent listed other non-media sources.

And what of the importance of the MRRAP? Keisling says it was designed to prioritize risks.⁵ In her thesis, she examined the public policy issues behind environmental social responsibility. The United States continues to spend more each year on environmental protection, she wrote, totaling over \$150 billion in fiscal year 1993.

Pulling together the various societal decision makers who will help make environmental risks manageable has not been effective due to "fragmentation" of the various groups. Fragmentation refers to the variety of opposing viewpoints and poor communication between various environmental policy makers. "Recurring problems are often the result of short-term, linear thinking. This results in 'patchwork attempts' and 'piecemeal solutions.' As a result, agencies, and even individual policies, must compete for limited resources," she wrote. Enter the phenomenon of risk assessment. Although its definition is quite broad, risk assessment strives to combine scientific data with plausible assumptions and qualitative thinking to generate a value of ecological or human health risk, she wrote.

Risk assessment dates back to the 1960's. More recently, Congress passed "The Risk Analysis Research and Demonstration Act of 1982." Its purpose was to implement a vehicle to improve the use of risk analysis in federal agencies responsible for protecting human health and the environment. Nine years later the MRRAP was conducted to provide a local level of risk assessment.

Keisling presents both sides of the risk analysis debate, including those in the scientific community who think it is too subjective. That is why risk communication is so important, given the divergence between the public and expert risk perceptions. The risk communication process

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involves three players: those who assess risk (scientists, researchers, and individuals); those who manage it (EPA, MDNR, corporations, businesses, special interest groups); and those who communicate it, including the mass media. But it is the scientists who are still transmitting the data to the public.

Keisling wanted to know how the agriculture experiment stations at Michigan State University should play into the risk management process before the risk is communicated. And although risk assessment has its share of proponents and opponents, this is precisely why it needs to be communicated to the public. "...risk communication provides the means to engage the public in meaningful dialogues about risk so that a holistic definition of risk may be achieved," she wrote.

At present, only a one-way model of risk communication is being used. This involves the scientists who report and transmit their findings to the public. This is not good enough, she wrote. Risk communication needs to be an on-going dialogue between those who assess and those who manage. Therefore, those who use risk assessment should admit the quantitative uncertainty of these analyses and strive to include the qualitative factors.

If the media has a social responsibility, then conveying risk communication to the public should be considered a high priority. But how high of a priority has it been in terms of the mass media? The following brief overview will help to clarify the scope and priority of newspaper and magazine environmental coverage since awareness of pollution first sprouted in the late 1950's.

Rubin and Sachs conducted research to determine how the public digests environmental stories served up to them by the mass media.⁶ Their primary concern focused on what influences may have contributed to the types of stories published in local papers. Using the San Francisco Bay area as a California model, their research addressed that state's widely publicized environmental issues: water resource management, land use planning, and atomic energy. Funded by the National Science Foundation to investigate how the public perceived these environmental issues via the mass media, their research at Stanford was conducted from June 1970 through September 1971 by 36 graduate and undergraduate students in communications, law, medicine, geology, physics, and biology.

They examined the beginnings of science reporting after World War II through a 1957 benchmark survey conducted by the National Association of Science Writers and the Survey

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Research Center of the University of Michigan. That study found newspaper readers had a comparatively active interest in science news, but that editors were inclined to downplay its importance.

In a 1959 President's Science Advisory Committee on Education for the Age of Science, the Committee said problems associated with air and water pollution were too pressing to wait for the electorate act. The authors wrote, "This puts the burden of educating the public about scientific and technological challenges squarely upon the mass media, particularly newspapers."

Hungerford and Lemert found local media tend to cover environmental issues, "up the road a piece," rather than local issues.⁷ Coverage of the environment could be equated to a 1948 term known as "Afghanistanism." Jenkins said the term stemmed from an editor who told his colleagues that "...many an editorial writer can't hit a short-range target.... You can pontificate about the situation in Afghanistan in perfect safety. You have no fanatic Afghans among your readers."

They reviewed all news and editorial space associated with the environment for each of Oregon's 20 general circulation daily newspapers during a seven day period in 1970. "Environment content was defined as dealing with man's positive, negative, or unknown influence upon, or relationship with, his environment." Their definitions included wildlife preservation, sewage disposal problems, reviews of environmental "specials" on television, nuclear (thermal) pollution and citizens who complained about grass burning in agricultural areas.

Compared to other news topics, they observed that far more of the environmental stories dealt with issues or events outside their newspaper's region. More than 50 percent of the environmentally-related stories were found to be outside the newspaper's circulation area, compared to only one in six for the other news items.

Several months after the first Earth Day in April of 1970, Bowman and Hanaford were interested in the issue of "durability" — whether the media's coverage of an environmental issue held up over time.⁸ National magazines like National Geographic, McCall's, Sports Illustrated, Better Homes and Gardens (BH&G), Reader's Digest, Harpers, and Playboy, demonstrated how environmentally-related issues exemplified the epitome of durability.

Their study found throughout the 1960s, air and water pollution had ruled the journalistic highway. But between 1971 through 1975 preserving natural resources became more

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important than coverage of pollution issues. Some 53 natural resource stories were published among major magazines during this time period. By contrast, only 31 of the stories in these magazines focused on water pollution issues.

A shift in the amount of environmental reporting⁹ was the topic of Howenstine's 1987 study. A content analysis that focused on environmental stories in major periodicals during two one-year periods more than a decade apart showed the amount of space devoted to its coverage increased. He examined periodicals like The New York Times, The Washington Post, Time, and Newsweek. Column inches increased, on average, from 13 inches to 16 inches, with regard to environmental topics.

Turning more towards what factors influence environmental coverage, we decided to incorporate the agenda setting theory and the notion of reporter source interaction to support our hypothesis. A hypothesis that says we believe journalists ought to view the MRRAP as a credible and influential scientific document, therefore, helping to prioritize its coverage.

In a 1987 study, for example, Caudill examined press views several decades following the publication of Darwin's Evolution Theory.¹⁰ He compared the amount of coverage given Darwin's theory in both The New York Times and the American Journal of Science. Caudill found coverage among both publications was similar.

More importantly, he also noted both publications were influenced by the newsworthiness of the issue over time. Here, for perhaps the first time, was a scientific document, not just an issue, that had been given serious press coverage.

Shoemaker and Reese wrote there are several divisions of reporter source interaction each helping to set the agenda.¹¹ These include what the authors call a hierarchical model with the influence on coverage greatest on the individual responsible to publish the news, like a journalist or editor, and then ever decreasing influences on coverage such as the notion of a routine.

A routine, says the authors, is how the particular media organization functions, how information such as press releases and other standard story tools are used on a day-to-day basis in the media. This is followed by an extra media layer, including competing industry influences setting the agenda dubbed, the extra media level, and finally an ideological level representing an even less influential force on coverage. And all of these combine to make what is

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known as the reporter's source interaction.

Our study is a continuation of the attempts previous researchers have demonstrated that suggest scientific data is an important source in setting the agenda, depicted in the amount of newspaper space and types of issues devoted to environmental coverage.

Research Questions

In this study we have examined the environmental news coverage of nine daily newspapers in Michigan during the six months following the publication of the MRRAP study in July 1992. We asked these questions:

1. Was the total proportion of environmental stories in selected Michigan daily newspapers between July 1992 and January 1993 consistent with the categories specified in the 1992 MRRAP report, taking into consideration the number, location, and size of each piece coded?
2. How many environmental news stories were published between July 1992 and January 1993 and how much of the newspapers' newshole was devoted to different environmental subject areas?
3. What percentage of environmental stories found at selected Michigan daily newspapers between July 1992 and January 1993 were outside each newspaper's major circulation area?
4. Were environmental journalists at selected Michigan daily newspapers aware of the MRRAP results within a 90-day period after it was originally published in July 1992?
5. If environmental journalists at selected Michigan daily newspapers were aware of the MRRAP study, did its findings set their environmental newscoverage agenda?

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METHOD

Both a content analysis and telephone interviews were employed for this study. Nine Michigan daily newspapers were selected for observation — three large dailies, three mid-size dailies, and three small dailies. We wanted a sample containing as little bias associated with the size of the newspaper's community and its circulation area that could possibly influence the editorial agenda and reporter source interaction. The three large newspapers selected, therefore, were the Detroit Free Press, The Detroit News and Grand Rapids Press; the three mid-size dailies were the Lansing State Journal, Kalamazoo Gazette and Saginaw News; and the three small dailies were the Ironwood Daily Globe, Albion Recorder, and the Marshall Chronicle.

Out of the 52 daily Michigan newspapers in 1992 (excluding The Detroit Legal News), The Detroit News, Detroit Free Press, and Grand Rapids Press were the state's papers with the largest circulation.¹² Ironwood Daily Globe, Albion Recorder, and Marshall Chronicle were the three papers with the smallest circulation in the state. (No outstate editions were included in this study and only one daily edition of each paper was examined.)

The MRRAP was published in July 1992 and we chose the six-month period following its publication — July 1992 to January 1993 — for our study.

The telephone survey was useful in helping to determine if the MRRAP influenced the agenda of the reporter most responsible for selecting and publishing environmental stories. It was conducted over a two week period, due to availability of individual journalists, and consisted of four short closed questions that led to answering research question four and question five of our study. The answers to those questions will follow in the Results section under the heading MRRAP Awareness.

Sampling

Riffe, Aust, and Lacy's constructed week sampling¹³ technique was used to determine a representative 14-day period to examine the newspapers' coverage of environmental issues during the six months examined.

A second sample period was used for the Marshall Chronicle and the Albion Recorder because they did not publish enough stories during the first sampling period to be statistically significant.

Due to the joint operating agreement (JOA) between The Detroit News and the Detroit Free Press, each are separate publications during the week days, but the Saturday and Sunday

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editions are identical except for the editorial pages.

Since both periodicals often ran environmental stories written by either entity's staffers, only those stories that indicated the periodical for which the staff writer worked would get an environmental story credit towards that periodical's MRRAP count. The weekday editions, however, remain relatively independent entities.

Stories written by the Associated Press and other wire services were given credit towards the publication in which they appeared. Duplicate stories found in county inserts were only counted once. Articles had to contain at least three square inches of copy to be coded.

For the most part, the coding book consisted of MRRAP issue definitions as outlined in the, "White Papers: Michigan Relative Risk Analysis Project," Michigan Department of Natural Resources, Office of Policy and Program Development, July 1992.¹⁴

Each piece coded was examined based on a broad and minor emphasis definition. If 50 percent or more of a story dealt with one MRRAP issue (delineation) it was coded in the broad emphasis category. If 25 percent to 49 percent of a story dealt with a MRRAP subject it was coded in the minor emphasis category. Each piece could be coded in both a broad and minor emphasis rating.

The major circulation area was defined as the largest county or counties where the newspaper is distributed. It was used to measure the Afghanistanism Model.

Prominence refers to the section of the newspaper where the story was found. Stories found on the front page above the fold received the highest prominence rating. Stories below the fold on the front page received a slightly lower rating. Stories published on the front of other sections or at other locations received still lower ratings.

The results were tabulated using SPSS+ software.

Inter-Coder Reliability

The Lansing State Journal was chosen for the pilot study because it was neither a small nor large daily newspaper and it would likely yield a wide-range of environmental stories because of its location in Lansing, Michigan, the state's capital. Since a constructed week sample was not available for purchase, a straight seven day period from April 29, 1995 through May 2, 1995 was used. A Ph.D. candidate in mass communication, Coder I, volunteered for the pilot.

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The ability to select the environmental stories from the week sample was almost entirely in agreement between Coder I and one of the co-authors. We were consistent in all other areas except the newshole count. To remedy this we rewrote the portion of the coding definitions that dealt with what stories were included, and what stories were not included.

The newshole count proved to be the biggest challenge, as it was at first difficult to determine precisely what constituted a story. For example, if two short bylined stories (at least three square inches) appeared under one headline, they were judged and measured independently and counted as two stories.

Percentage of agreements for the intercoder reliability study were based on a total of eight questions. We found 93 percent agreement for the first question that asked what was the article format? Four possible choices were given, either the piece coded was an article, editorial, letter to the editor, or a book review. Only the article format saw a disagreement using statistical method known as Scott's pi. Question two, that was also calculated using Scott's pi, asked the coders to examine the prominence agreement. Here the coders had 100 percent agreement. For number of square inches found per piece coded, question three, there was a 100 percent agreement among 17 of the 18 pieces found during the Lansing State Journal week sample. One piece coded in the article format received zero agreement because only one coder culled the piece as an environmental story. The other did not. Therefore, it was not measured.

In terms of the Afghanistanism model, question four, both coders had 100 percent agreement. Each found 13 pieces to be outside the periodical's major circulation area, while five pieces were inside. When examining the broad emphasis of each piece coded, question five, and the ability for each coder to put each piece into a minor emphasis coded, or question six, there was again, 100 percent agreement. Questions seven and eight were mechanical steps that had each coder check one of the four categories of the piece coded as High-High, High, Medium-High, or Medium, for both the broad and minor emphasis. Here too, each coder was in 100 percent agreement.

RESULTS

The first question was this: Was the total proportion of environmental stories in selected Michigan daily newspapers between July 1992 and January 1993 consistent with the categories specified in the 1992 MRRAP report?

We found that, in general, the findings were consistent. The greatest number of stories

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(80) and the greatest number of square inches of news stories (1,762) involved stories in the highest priority category, the High High category.

The number of stories in the High-High category was 80; in the High category 47; in the Medium-High classification 57; and in the Medium category 22. Therefore, there were nearly four times as many High-High stories as Medium ones. Moreover, there were nearly twice as many pieces coded in the High-High category than in the Medium-High classification (see Table 1).

**Table 1: Comparison of combined* environmental stories
found by frequency, size, and location**

Total number of broad environmental stories found by MRRAP category	Total number of broad square inches found by MRRAP category	Mean of prominence measurement by MRRAP category	
MRRAP category	Number of broad stories	broad inches	prominence measurement
High-High	080	1,762	1.8
High	047	1,232	1.6
Medium-High	057	0,915	1.6
<u>Medium</u>	<u>022</u>	<u>0,319</u>	<u>2.2</u>
Total	204	4,228	—
Total sample	289	6,127	—
minor only	083	1,799	—
minor with broad	188	3,928	—

* Combined refers to all nine newspapers

In addition, it is also worth noting not all MRRAP categories were evenly balanced in terms of the number of issues they contained. Of the nine periodicals examined, 289 environmental stories as outlined in the coding definitions were found. Overwhelmingly, most of the stories found were articles. In addition, there were also editorials, letters to the editor, and a book review (see Table 2).

**Table 2: Combined article format
of environmental pieces culled**

article	256
editorial	022
letter to the editor	010
book review	<u>001</u>
Total sample	289

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The stories found in the dailies emphasized the High-High issues both in frequency and square inches. High-High stories accounted for 1,762 (29 percent) of the 6,127 total inches found (see Table 1). The Total number of square inches in the High-High, High, Medium-High, and Medium groups followed in descending order, mirroring the MRRAP priorities. But, the papers were not consistent with the other lower categories, where the emphasis, in terms of number of stories, showed partiality towards the Medium-High group and not the High one.

The greatest number of stories in any one of the categories (35) involved solid wastes, which are in the Medium-High category of environmental risk. These stories were typically about landfills. All nine newspapers published at least one story about solid wastes. Another popular issue in this category involved recycling. Solid-waste pieces accounted for the number two ranked spot in terms of square inches, with slightly more than 650 recorded in the broad emphasis category (see Table 3).

One reason this topic may have been so widely reported is because landfills are frequently controversial, often generating conflicts in the communities in which they are located.

The second most common issue written about involved biodiversity and habitat modification, a subject in the High category. This subject area ranked first in terms of the total number of square inches found and second in terms of frequency with 29 pieces or 10 percent of the entire sample. This category totaled 880 square inches of news stories, 200 more inches than the subject area of solid-wastes.

General environmental awareness had 23 stories, making it the third most popular issue. Included in this issue were stories related to environmental racism, protests, Earth Day, book reviews, or being environmentally conscious. Energy production and consumption yielded 22 stories, making it the fourth most popular issue. Both of these subjects are in the High High category.

Land use planning was the fifth most popular subject with 17 pieces coded under this delineation. Accidental releases and responses were the sixth most quite popular with 14 stories.

Only three of the 289 articles examined dealt with stratospheric ozone depletion, even though this subject was ranked by the MRRAP in the High-High category.

Prominence demonstrated a different picture of environmental coverage (see Table 4). Pieces coded in subject areas in the Medium category (accidental releases and responses, acid

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deposition, criteria and related air pollutants, and electromagnetic fields), were found to have a higher prominence rating, meaning that they were more likely to have been published towards the front of the newspapers.

However, articles dealing with lack of land use planning, urban degradation, and the other High-High issues weren't far behind with an average mean of 1.8. Stories dealing with High and Medium-High issues were published farther back in the newspapers (see Table 1).

Table 3: Combined and ranked delineations by frequency, square inches, and prominence

Delineation/MRRAP category	Broad amount ranked	Broad pieces culled	Broad inches	Broad inches ranked	Broad mean	Broad Prom.	Broad Prom. ranked	Minor culled	Minor inches	Minor mean	Minor Prom.
Population	22	289n	6126.50	22	21.00	1.6	05	289n	6126.50	21.00	1.6
Total High-high											
1. land use planning	04	17/6%	340.00	05	20.00	1.4	07	06/2%	173.00	21.00	1.8
2. Degradation of urban environment	07	06/2	281.50	06	47.00	2.0	03	01/0	007.50	29.00	1.0
3. Energy production and consumption	03	22/8	417.50	04	19.00	1.6	05	07/2	229.00	33.00	1.9
4. Global climatic change	06	09/3	180.50	09	20.00	2.3	02	02/1	047.50	24.00	3.0
5. General environmental awareness	03	23/8	490.50	03	21.00	1.4	07	06/2	089.00	15.00	1.8
6. Stratospheric ozone depletion	08	03/1	052.00	15	17.00	2.0	03	02/1	032.50	16.00	1.5
Total High											
7. alteration of surface water	00	01/0	016.00	17	16.00	2.0	03	04/1	079.00	20.00	1.0
8. Atmospheric transport/air toxins	00	04/1	058.00	14	14.50	1.5	06	02/1	057.50	29.00	2.0
9. Biodiversity/habit modification	02	29/10	881.50	01	30.00	2.0	03	34/12	842.50	25.00	1.4
10. Indoor pollutants	08	04/1	058.00	14	14.50	2.0	03	04/1	092.50	23.00	2.5
11. Trace metals in the ecosystem	06	09/3	218.50	07	24.00	1.6	05	05/2	090.00	18.00	1.2
Total Medium-High											
12. Contaminated sites	00	01/0	013.00	18	13.00	2.0	03	00/0	000.00	00.00	0.0
13. Contaminated surface water	00	01/0	010.50	19	10.50	1.0	08	01/0	009.00	09.00	1.0
14. Generation/disp. of hazardous waste	08	04/1	064.00	13	16.00	1.8	04	00/0	000.00	00.00	0.0
15. Generation/disp. of high level waste	07	07/2	104.50	11	15.00	1.5	06	06/2	099.50	17.00	1.5
16. Generation/disp. of solid waste	01	35/12	659.50	02	19.00	1.5	06	12/4	179.00	15.00	1.5
17. Photochemical smog	00	00/0	000.00	00	00.00	0.0	09	01/0	033.00	33.00	1.0
18. Point discharge to surface water	06	09/3	163.00	10	18.00	1.8	04	06/2	107.50	18.00	1.0
Total Medium											
19. Accidental releases and responses	05	14/5	199.50	08	14.00	2.0	03	02/1	030.50	15.00	3.0
20. Acid deposition	00	00/0	000.00	00	00.00	0.0	09	00/0	000.00	00.00	0.0
21. Criteria and related air pollutants	00	01/0	028.00	16	28.00	3.0	01	00/0	000.00	00.00	0.0
22. Electromagnetic field effects	07	07/2	091.50	12	13.00	1.5	06	00/0	000.00	00.00	0.0
Total Minor coded pieces											
23. Any environmental piece coded deemed related to the environment or the MRRAP, but did not contain a clear broad emphasis.	01	83/29*	1799.00	01	22.00	1.6	05	188/65**	3928.00	21.00	1.6

* Minor only

** Broad with minor

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Table 4: Combined prominence location of environmental stories examined

Location	number	percentage
Front page, above fold	015	05%
Front page, below fold	022	08%
Front section	095	33%
<u>Other location</u>	<u>157</u>	<u>54%</u>
Total sample	289	100%

Newshole

The second question was: What number and percentage of the newshole in selected Michigan daily newspapers was related to environmental issues between July 1992 and January 1993? Only three percent — 289 out of 9,984 — of the stories counted in the nine newspapers dealt with environmental issues (see Table 5).

The Saginaw News and The Grand Rapids Press had the most environmental coverage with 56 and 55 pieces, respectively. In second place was the Lansing State Journal with 41 pieces. Surprisingly, both the Saginaw News and The Grand Rapids Press had more than twice as many environmental stories as their bigger daily newspaper counterparts, The Detroit News and the Detroit Free Press. The Marshall Chronicle had the fewest environmental stories with only 16.

All nine newspapers published small pieces dealing with environmental issues that contained fewer than three square inches, and therefore were not included in the study.

Table 5: Combined percent of newshole dedicated to environmental coverage

Total environmental pieces culled for sample	Total pieces counted in all nine periodicals	Total environmental newshole percent
289	9,984	2.89 percent

Overall, the results did not seem too surprising, considering that the summer and fall of 1992 were filled with many pressing and newsworthy stories that apparently helped to keep environmental issues on the back burner, as we will soon discuss. Yes, there was an environmental summit in Brazil that year, but it had occurred in early June (several weeks before the MRRAP study was formally announced in Lansing). This was also a Presidential campaign year with George Bush, Ross Perot, and Bill Clinton receiving the lion's share of newspaper coverage.

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Some of the more important environmental stories that did receive coverage included a tires-to-energy plant that was being proposed in Albion. Both the Marshall Chronicle and the Albion Recorder covered this issue. Still, as the culling and coding process continued, much of what was found in the newspapers involved such day-to-day news staples as murders, school board meetings and the natural disasters that plagued the day.

This was a period defined by Hurricane Andrew and one of the coolest summers in Michigan history. Mt. Pinatubo's volcanic eruption, the aftermath of the Gulf War, and the El Nino, a periodic warming of the water in the central and eastern Pacific Ocean, also regularly made the headlines. But, for the most part these news events did not qualify as environmental stories because they did not focus specifically on environmental issues. The Ironwood Daily Globe focused several of its stories on recycling issues and had many outdoor pieces that took the environment into consideration. This northern Michigan paper had the highest percentage of its newshole devoted to environmental coverage out of all nine newspapers (see Table 6).

Table 6. Frequency of environmental stories found by periodical
including total newshole

Periodical	Number of stories	Number in newshole	Percent of newshole
Detroit Free Press	22	1,552	1.4%
The Detroit News	21	1,478	1.4
Grand Rapids Press	55	1,943	2.8
Lansing State Journal	41	0,949	4.3
Kalamazoo Gazette	29	1,062	2.7
Saginaw News	56	1,166	4.8
Ironwood Daily Globe	25	0,346	7.2
Albion Chronicle	24*	0,672*	3.6
Marshall Chronicle	16*	0,527*	3.0
Total sample	289	9,695	3.0

* Includes extra constructed week

Growth issues in the Lansing State Journal dealing with Lansing's suburban Meridian township accounted for most of the land-use stories found in all nine newspapers.

Many of the periodicals examined carried the same stories, particularly those involving chemical factory explosions, because these stories were carried by the Associated Press. In the Saginaw News, many letters to the editor about the Consortium for International Earth Science Information Network (CIESIN) were published. CIESIN is an environmental research organization that was planning to build a regional facility on Ojibway Island, a nature

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sanctuary in the Saginaw River. The city had approved its location, but many residents felt it would disrupt the wildlife on the tiny rustic parcel of land.

A 1992 study about risks associated with living next to power lines was published in almost all the newspapers in this study. Other articles, focusing on the unusually cool summer because of global phenomena, such as El Nino or volcanic eruptions, were published in all of the newspapers.

Afghanistanism model

The third question is: What percentage of environmental stories found at selected Michigan daily newspapers between July 1992 and January 1993 were outside each newspaper's major circulation area?

Our analysis found of the 289 stories examined 179 were outside the newspaper's major circulation areas and 110 were within the circulation areas. Therefore, approximately 62 percent of all the environmental stories examined occurred outside the major circulation areas of the newspapers.

Even the two largest dailies, the Detroit Free Press and The Detroit News published most of their environmental stories about subjects outside their major circulation areas. For example, the Detroit Free Press published seven local environmental stories and 15 environmental stories dealing with events outside its circulation area. The Detroit News published eight environmental stories about events within its local circulation area and 13 dealing with non-local issues. In both newspapers, non-local environmental stories were often written by the Associated Press and dealt with such issues as chemical spills and global climactic change.

While these findings appear to support the Afghanistanism hypothesis, it would be risky to conclude editors were consciously trying to avoid local environmental issues. More likely, they may have been responding to their judgments of the newsworthiness of daily events.

MRRAP Awareness

The fourth question is: Were environmental journalists at selected Michigan daily newspapers aware of the MRRAP results within a 90-day period after it was originally published in July 1992?

A telephone survey of environmental reporters and editors at the nine newspapers

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found that only three of the nine were aware of the MRRAP study at all. All three learned of the study within 90 days after it was published.

The fifth question is: If environmental journalists at selected Michigan daily newspapers were aware of the MRRAP study, did its findings influence their environmental coverage?

Only one of the journalists, Dennis Knickerbocker of the Lansing State Journal, said the MRRAP had any effect on the newspaper's environmental coverage.

At two other newspapers — The Grand Rapids Press and the Saginaw News — journalists said they, too, were aware of the MRRAP study but said it had no influence on their newspaper's coverage.

CONCLUSIONS

This study of nine Michigan newspapers concludes that, in general, their coverage of environmental issues is consistent with the priorities set by the 1992 MRRAP. Eighty of the 289 environmental stories found (28 percent) dealt with subjects considered to be High High by the MRRAP.

However, the newspapers placed a much greater emphasis on some subject areas — such as solid wastes, biodiversity and habitat modification — than the MRRAP found is warranted. More than a fifth (22 percent) of all stories dealt with these issues even though they were not a High High priority in the MRRAP.

The newspapers also published only 12 stories (four percent) dealing with either global climatic change or stratospheric ozone depletion despite the fact these are two of the six subjects considered to be in the High-High category by MRRAP.

What's more, the newspapers were not consistent in terms of the number of stories found at the High (47) or Medium-High (57) categories, where more coverage was given to the latter.

In terms of total square inches of environmental stories published the newspapers were consistent with the MRRAP study. They published 1,762 square inches of stories dealing with subjects in the High High category of the MRRAP or nearly 42 percent of their overall environmental coverage.

When examining the prominence ratings given to the stories, environmental issues in the Medium-High category were assigned more towards the front of the newspapers than the High-High category ones. This indicates the newspapers did not believe they were as important as

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their Medium category counterparts.

One possible explanation is because some Medium issues (such as accidental releases of oils or chemicals) are usually local and are consequently played more prominently by daily newspaper editors. On the other hand, some High-High issues (such as global climatic change and stratospheric ozone depletion) are predominantly international — not local — and therefore given less prominence by local daily newspaper editors.

But why then was coverage relatively consistent in the High-High category since only one newspaper even acknowledged that the MRRAP may have influenced its coverage? One possible explanation for this is that environmental journalists are generally aware of the scientific priorities of environmental risks because of their regular contact with scientists and governmental regulators dealing with these environmental issues.

Perhaps, future researchers could attempt to duplicate our study to see if the stories found continue to mirror the MRRAP results. This may help to determine the durability of certain environmental issues.

What's more, other researchers could examine a wider range of environmental coverage and compare it to the Environmental Protection Agency's Relative Risk Analysis Project, which set environmental priorities on a national scale.

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Domestic and International Coverage of AIDS/HIV by the New York Times, Los Angeles Times and USA Today: 1990-1994

by

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ABSTRACT

AIDS is no longer just a national concern. As the global village becomes a viable reality, health concerns are becoming international issues.

The media play a powerful role in disseminating information about AIDS/HIV. Against the backdrop of the long-forgotten New World Information Order debate and media related AIDS/HIV research, it was the aim of this study to examine how leading American dailies are covering the issue in a national and international capacity.

The main findings indicate that developing world regions mostly got meagre and relatively negative coverage, and that geographic proximity determined the amount of coverage devoted to a region. A critique of the findings and suggestions for further research are included.

Domestic and International Coverage of AIDS/HIV by the New York Times, Los Angeles Times and USA Today: 1990-1994

The world AIDS epidemic has entered its second decade of research, controversy and confusion. The U.S. medical community first gained knowledge about the deadly HIV in 1981, and the U.S. Public Health Service named AIDS as its number-one priority in 1983 (Hertog, et al., 1994). Since then, different media coverage patterns of the disease have emerged.

According to a 1992 report of the Global AIDS Policy Coalition (The Futurist, 1993), 12.9 million people around the world had been infected with HIV (out of which 2.7 million had developed AIDS and 2.5 million had died) and it is estimated that by the end of 1995, another 6.9 million people worldwide will be infected. The total number could build up to 110 million by the turn of the century.

Complacency about the disease on the part of industrialized nations which are in the forefront of AIDS research, prevention and awareness campaigns is a prevalent and dangerous trend (The Futurist, 1993). AIDS is not contained in watertight regional compartments; nor is it incapable of transcending geographic boundaries. The increase in global interdependence, trade, migration and travel over the last four decades has caused distinctions between domestic and international boundaries to diminish, and this implies that the boundaries between domestic and international health are disappearing as well (Berkley, 1992).

This is especially the case for the United States. The revision of the immigration laws in 1965 and the late 1980s resulted in an influx of immigrants from several developing regions such as Latin America, the Caribbean, Asia and Africa (O'Hare, 1992). Americans, on the other hand, travel widely to various parts of the world for reasons such as trade, government business, academics and holidays. These factors directly affect international health.

In the face of the intermingling of various ethnic and racial groups in the 'melting pot' which is the U.S., and the emergence of the global village, awareness about the worldwide situation of AIDS is important for the purposes of advancing integrated research operations,

implementing prevention, education and awareness campaigns, and for removing stereotypes and ignorance associated with the disease in connection with particular regions of the world. For instance, since AIDS is spreading the fastest in developing nations such as Thailand and Uganda, insufficient awareness about the situation and causes of the disease in these parts of the world could lead the public in developed nations to believe that AIDS is mainly a tropical disease (Berkley, 1992) and cause them to remove themselves from what is truly a global situation.

Purpose of study

The media, especially the print media since the broadcast media conveys mostly images, is an important source of information about AIDS/HIV for the American public (Nelkin, 1991). The domestic coverage of AIDS in the American media was cautious in the early 1980s and hyped in the mid and late 1980s when the sensational nature of the disease without a cure was established (Nelkin, 1991). The media is constantly castigated for ghettoizing the disease and focusing on groups following certain lifestyles, suppressing the facts and relying too much on sensationalism (Fumento, 1993).

The passing of blame has been a definitive factor in the coverage of AIDS/HIV by the many presses of the world. Several African nations have blamed the United States for unfairly labelling the "dark continent" as the origin of the deadly disease. France and the former Soviet Union went to the extent of viewing the virus as a creation of the American Intelligence for use in possible biological warfare — a military conspiracy. Several Asian countries such as India and Thailand initially labelled AIDS as a "foreign" disease brought into their countries by tourists and foreign travellers. China refused to recognize for a long time that several of its citizens are infected with HIV. The United States on the other hand, pointed fingers at Haiti and some African nations while developing theories of origin (Sabatier, 1988).

The purpose of this study is to examine and compare the international and domestic coverage of AIDS/HIV by the New York Times, Los Angeles Times and USA Today for the period January 1990 to December 1994. The first two newspapers were selected because they cater to a vast international population which resides in New York and Los Angeles, and also

because these cities are two of the three cities in the U.S. with the highest number of AIDS/HIV cases (Rogers, et al., 1991).

USA Today was selected since its format differs from the more traditional format of the New York Times and Los Angeles Times. This enabled a comparison of the coverage by the two types of newspapers. Also, all three newspapers are among the highest circulating dailies in the nation. The period of study was selected in order to give immediacy to the results and also to update previous studies which concentrate mostly on media coverage of AIDS/HIV in the 1980s.

This study aims to throw some light upon the manner in which the leading American dailies are handling the issue of AIDS/HIV — at home and abroad. It tries to search for patterns of coverage — negative and positive — of different world regions. The search was conducted in the context of the criticism and scholarship which already exists regarding the American press' coverage of other world regions, particularly the Third World. Characteristics of newsworthiness normally applied by the press, such as drama, timeliness, relations with the United States, involvement of Americans, etc., were kept in mind while constructing the critique of the coverage.

Were there any negative or positive biases in the tone of coverage of any particular world region(s)? What was the tone of the domestic coverage of AIDS/HIV in comparison to the international coverage? Was there any marked difference in the types of sources used in the domestic and international stories? What was the proportion of event-based articles to features? These are the broad research questions this study addressed.

Literature Review

International news coverage by the U.S. media — criticisms

The general patterns of the coverage of international stories by the U.S. media over the last couple of decades is an important factor to keep in mind while analyzing the coverage of AIDS/HIV in other parts of the world. The New World Information Order (NWIO) debate of the late 1970s and 1980s was the stage whereupon Third World countries argued that the western media portrayed fragmented, negatively biased and primarily conflict-ridden pictures of developing

nations to their publics (Richstad and Anderson, 1981). In the wake of this debate, several studies were conducted in order to examine the U.S. media's coverage of other world regions.

The results of several of these studies show that the international coverage of the U.S. media is partial and biased against certain world regions (Emery, 1989) such as developing nations. According to Chang and Lee's (1992) recent study of 540 U.S. dailies for the period December 1987 to March 1988, news from Eastern and Western Europe followed by the Middle East occupied a major percentage of the newshole. The coverage of Africa was consistently low. Emery's (1989) study of 10 major dailies for the period November 1987 to January 1988 showed that at the time when important news events were breaking out in Korea, Israel, the Persian Gulf and Central America, these newspapers devoted only 2.6% of their non-advertising space to news from abroad. Potter's (1987) study of eight major dailies, which included the Los Angeles Times, found that the West was featured exclusively as much as 72.6% of the time. The Third World was covered 7.5% of the time while the East was covered only 2.8% of the time.

In a comprehensive qualitative study which reviewed several other studies on international news flow patterns, Lent (1977) concluded that international news coverage by the U.S. media depends on factors such as international diplomacy, national government and military policies and historical and cultural heritage. Lent also concluded that foreign censors, crisis reporting, national interests and the shrinking number of foreign correspondents is causing a decline in international news coverage.

In an innovative study of international stories in U.S. business magazines (Forbes, Business Week and Fortune) for the periods 1964 to 1968, 1974 to 1978 and 1984 to 1988, Mayo and Pasadeos (1991) found that these magazines devoted approximately 15% of their newshole to international business affairs. There was no change in the numbers from the 1960s to the 1980s. Western Europe was covered more than U.S. trade connections would justify and the Americas got less than their expected share in terms of trade relations. Cultural ties was an important factor which affected coverage of world regions.

Mazharul Haque's (1983) study of the New York Times, Washington Post and the Christian Science Monitor for the year 1979, however, did not show a Eurocentric focus in the coverage of international news. Sixty percent of the international stories were about Third World issues. The Middle East topped with 30% of the foreign news space followed by Asia at 22%. Western Europe tailed with 16%. This study, however, did not examine the negative or positive content of the stories. Also, it should be noted that this study was conducted around the time when the NWIO debate was in full swing. It is possible that, as a result of this debate, the Western media was extra sensitive to the issue of covering the Third World. Coverage of Israel and Japan, which do not fall into the category of developing nations, may be another factor responsible for the extensive coverage of the Middle East and Asia.

In a related study by Riffe and Shaw (1982), the examination of a random sample of international news stories from the Chicago Tribune and New York Times for the period 1970 to 1979 showed that although the Third World wasn't played down in these newspapers, the coverage was negative and biased against some world regions. Weaver and Wilhoit's (1983) study of the flow of news from the Associated Press and United Press International into 11 small Indiana dailies for the year 1981 showed that the tendency of the wire services was to inordinately cover conflict news in the developing countries and that the dailies studied used a large quantity of this type of news.

Wanta and Hu (1993) studied international news coverage by the New York Times, ABC, CBS and NBC for the period 1975 to 1990 and found that stories carrying a strong element of conflict and those featuring Americans had the highest agenda-setting impact. Shoemaker, et al.'s (1991) examination of the same media for the years 1985 and 1985 revealed that one-fourth of the New York Times' news space was devoted to international news while only one-tenth of the networks' news-window carried international news. Events different from U.S. national values and those which occurred in nations politically and economically significant to the U.S. were most likely to be covered.

These studies indicate that in its international news coverage, the U.S. media tends to focus on Western Europe and other nations culturally, economically and politically close to U.S. interests. The amount of news from developing and Third World countries is low and usually conflict-ridden. The overall percentage of international news coverage by the U.S. media is low compared to the international coverage by European, Third World and Socialist nations (Gerbner and Marvani, 1977). This trend continues (Shoemaker, et al., 1991).

AIDS and the U.S. media — the 'passing of blame,' stereotypes and sensationalism

The U.S. media was slow to catch on to the bandwagon of AIDS in the early 1980s. Primarily described as a 'homosexual disease' in the early 1980s, media coverage was possible only in gay communities with political influence (Nelkin, 1991). Uncertainty about this new and deadly epidemic kept reporters away from writing too much about it (Nelkin, 1991).

In 1985, with AIDS causing the death of movie star Rock Hudson, the disease suddenly became very real for the media, and newspapers championed the story and more news about AIDS in U.S. society followed (Shilts, 1987). The tendency at this early stage of coverage was to blame homosexuals and Haitian, African and other immigrants from Third World nations (Moore and Le Baron, 1986) since the fact that AIDS does spread through heterosexual and other channels hadn't yet been well-established in society.

Sensationalism was inextricably involved with the then-arcane and deadly nature of the disease (Schwartz, 1984). Media headlines comparing AIDS to the plague, leprosy and a time bomb appeared repeatedly and hammered panic into the minds of a largely unaware public who found psychological escape by passing the blame onto the 'other' (Nelkin, 1991).

Another factor that complicated media coverage of AIDS was the varied interests of different sources such as doctors, patients, activists and politicians, all of whom contributed toward polarizing different perspectives presented (Nelkin, 1991). For instance, Watts' (1993) study of the coverage of AIDS and polio in major U.S. magazines, newspapers and television

networks showed that most of the stories were about cure. This led Watts to conclude that scientists set the agenda for coverage in order to facilitate generating research grants.

The controversy regarding AIDS/HIV coverage by the U.S. media continues. The trend for the 1990s is to focus on AIDS activism and disputes among groups of scientists competing in the race to be the first to find a cure (Nelkin, 1991). The humanitarian components of the stories, which may help to eradicate stigmas associated with the disease, assume less importance (Nelkin, 1991).

Previous studies on the media coverage of AIDS/HIV

Limited research has been carried out on the media coverage of AIDS/HIV in the current decade. After the major excitement and initial spate of media related research about the disease in the 1980s, most of the current scholarship regarding AIDS is in the areas of communication development and behavioral research. While this is a positive approach, it is equally important to keep track of what the mainstream media is bombarding the masses with. As scholars of agenda-setting research have established over the years (McCombs and Shaw, 1972; Rogers, et al., 1991), the media's treatment of certain issues does play an important role in the shaping of public opinion and policy about the issues. Following are some of the pertinent studies which have been conducted about the coverage of AIDS/HIV by domestic and international media.

In a magazine study of the coverage of AIDS, cancer and heart disease, Clark (1992), examined Time, MacLean's, Ladies' Home Journal and Readers Digest for the period 1960 to 1965 and 1980 to 1985. The findings showed that the magazines gave their stories subjective meanings. The meanings attributed to the stories were strongly linked with the cultural experience of the target audience.

In a similar study, Hertog, et al. (1994) examined the coverage of AIDS, cancer and sexually transmitted diseases in 10 leading U.S. dailies (including the New York Times, Los Angeles Times and USA Today, ABC, CBS, NBC, Associated Press stories and Medline — a medical journal database) for the period 1980 to 1990. The researchers concluded that there was a great increase in coverage after 1985.

In an agenda-setting study of AIDS coverage in the New York Times, Los Angeles Times, Washington Post, ABC, CBS and NBC for the period 1981 to 1988, Rogers, et al. (1991) found that during the first half of the 1980s, the New York Times carried fewer stories than the Los Angeles Times. However, the roles were reversed in the latter half of the 1980s.

'AIDS/Cancer' was one of the hazard categories in a content analysis which examined the relationship between geographic location and the media's coverage of international hazards and disasters (Singer, et al., 1991). The results of this study revealed that geographical proximity of the source of the disaster was directly proportional to the amount of coverage.

Grube and Boehme-Deurr (1989) conducted a study of the coverage of AIDS/HIV for the period 1985 to 1986 by magazines in Germany, the U.S., Britain and France. The researchers concluded that the countries with the highest AIDS/HIV statistics did not necessarily devote more coverage to the disease than the countries with lower statistics.

The above studies mainly deal with the volume of coverage and do not delve too much into content and tone. Based on the evidence from the literature review of the coverage of international news by the American media, it may not be unreasonable to hypothesize that the domestic coverage of AIDS would be more positive and research oriented than the international coverage which may be more sensational and negative.

Method

Sample selection

The random sample for this content analysis study comprised 50% of the entire universe of stories on AIDS/HIV which appeared in the New York Times, Los Angeles Times and USA Today for the period January 1990 to December 1994. The unit of analysis was each individual story examined. Each story was analyzed paragraph-wise in order to determine the positive, negative or neutral tone of the entire story. A total of 221 stories were examined of which 123 were from the New York Times, 67 from the Los Angeles Times and 31 from USA Today.

Operational definitions of coding categories

The coding categories used to analyze the content of the stories were the following:

1. Case number
2. Date
3. Title of newspaper: New York Times, Los Angeles Times, USA Today
4. Tone of headline: Positive, negative, neutral.
5. Countries/world regions mentioned in headline.
6. Number of paragraphs in story.
7. Tone of story lead: Positive, negative, neutral.
8. Tone of story: Positive, negative or neutral. This was calculated by equating the total number of positive, negative and neutral paragraphs in the story.
9. Countries/world regions mentioned in story.
10. World regions represented in story: This category is based upon the world region categories used by Mayo and Pasadeos (1991) in their study of the international focus of U.S. business magazines (see coding sheet for regions). An additional regional category called 'UN/Other Similar Organizations' was included since international organizations are actively involved in the world AIDS situation.
11. Type of story: Issue/feature-based, event-based.
12. News sources used in story: Medical professional (doctors, nurses, etc.); academicians, scholars, scientists, researchers; politicians, government officials, administrators; and lay persons (including patients, relatives of patients, prostitutes, etc.).
13. Total number of photographs/illustrations in story.
14. Tone of photographs/illustrations: Positive, negative, neutral. For example, photographs of researchers at work were considered positive while the depiction of a patient as a plague victim was considered negative. Photographs of inanimate objects not conveying any message or people not engaged in any activity were considered neutral.
15. Length of story: Small (0-6 column inches), medium (6-18 column inches), long (18+ column inches).

Note: See Coding Sheet for details.

Reliability

Two coders, along with the author, conducted an item-by-item intercoder reliability test (Stempel, 1981) in order to check the validity of the coding categories.

The percentage of reliability ranged from a high of 100% for categories such as date, title of newspaper, number of photographs/illustrations to a low of 83% for the category defining tone of photographs/illustrations. The overall reliability for all the categories combined was 94.7%. A level of significance of 0.05 was selected for this study.

Results and Discussion

Distribution of domestic and international coverage

Findings of this study indicate that the U.S. got the highest amount of AIDS/HIV coverage as compared to other world regions (see Table 1) and was mentioned in more than 97% of the stories examined for each newspaper. Coverage of Western Europe was second highest in the New York Times (16.3%) and Los Angeles Times (19.4%) but not in USA Today. The latter devoted second highest AIDS/HIV coverage to U.S. Neighbors Mexico and Canada (16.1%). Oceania got low coverage from all three newspapers.

Apart from the above regions, the New York Times gave least coverage to the "Four Tigers," (2.4%) and low coverage to Japan, U.S. Neighbors, South Asia, Other East Asia, Eastern Europe and Central and South America and the Caribbean. The Middle East and North Africa and Sub-Saharan Africa fared slightly better at 9.8% and 12.1%, respectively. The Los Angeles Times also gave least coverage to the "Four Tigers" (3%). South Asia and Japan fared slightly better at 7.5% each. The rest of the world regions were covered between 10% and 12% of the time. USA Today gave least coverage to Eastern Europe (3.2%) followed by the Middle East and North Africa, Sub-Saharan Africa, the "Four Tigers" and Other East Asia at 6.5% each. Japan and South Asia were given equal coverage at 9.7%.

Looking at the distribution of the total number of region mentions for the 221 stories examined (see Table 2), the New York Times was the only newspaper which mentioned the U.S. in more than 50% of its total region mentions (54.8%). The Los Angeles Times (54.5%) and USA Today (53%) both devoted the majority of their region mentions to non-U.S. regions. However, significance at the 0.05 level was not obtained for this data.

Overall tone of coverage

Tone of stories

With regards to the tone of the stories, in spite of low coverage, stories featuring South Asia got the most positive coverage (78.6%) from all three newspapers combined followed by Oceania at 55.6% (see Table 3). Next in order for positive coverage were Eastern Europe (42.9%) and the U.S. (41%). Sub-Saharan Africa (16%), Japan (16.7%) and the Middle East and North Africa (19%) got the least positive coverage.

Stories featuring Japan got the most negative coverage (83.3%) followed by Sub-Saharan Africa at 80%, the Middle East and North Africa at 76.2% and Other East Asia at 73.3%. Stories featuring the U.S. were negative 48.8% of the time. Stories featuring the U.S. (10.2%) and Western Europe (10.8%) had the highest percentage of neutral stories.

Cumulatively, non-U.S. regions were featured negatively 63.8% of the time compared to the U.S.'s 48.8% and positively only 31.7% of the time compared to the U.S.'s 41.1% (see Table 4). Also, the U.S. had a higher percentage of neutral stories (10.2%) than the non-U.S. regions (4.5%). Significance at the 0.01 level was established for these results.

Tone of headlines

In the tone of the headline category, Oceania got the most positive coverage (42.9%) followed by the U.S. at 33.6% and Western Europe at 32.4%. Although stories featuring South Asia were most positive (see Table 3), the tone of the headlines of these stories were most negative along with the headlines of stories featuring the "Four Tigers" (85.7% each). Japan, once again got negative coverage in this category at 83.3%. Stories featuring the Middle East and North Africa, Sub-Saharan Africa and Other East Asia had negative headlines more than 70% of the time.

Tone of story leads

In the area of story leads, Oceania led again (along with Eastern Europe) with positive leads at 42.9%. Japan, in keeping with previous results on tone, scored the highest number of negative leads (75%) followed by South Asia and the "Four Tigers" at 71.4% each.

Tone of photographs/illustrations

A total of 100 photographs/illustrations were coded in the 221 stories examined (see Table 5). In these photographs/illustrations, Oceania led consistently in positive coverage (66.7%) followed by the U.S. at 42.5% and Western Europe at 33.3%. Stories featuring the South Asia had the most negative photographs/illustrations with Japan and the "Four Tigers" following close at 60% each. Stories featuring Central and South America and the Caribbean had the highest percentage of neutral photographs/illustrations at 50%.

Cumulatively, stories featuring non-U.S. regions had positive photographs/illustrations only 26.8% of the time compared to the U.S.'s 42.5% and negative photographs/illustrations 42.3% of the time compared to the U.S.'s low of 26% (see Table 6). The percentage of neutral photographs/illustrations were nearly equal for both. Significance at the 0.05 level was obtained for these results.

Additional findings

Sources used

All three newspapers used politicians/government officials/administrators as their prime source. The New York Times used them in 67.5% of its stories, the Los Angeles Times used them in 67.2% of its stories and USA Today used them in 67.7% of its stories. The second most frequent source used by the New York Times were academicians/scholars/scientists/researchers at 59.3% followed by lay persons at 34.1% and medical professional at 26%. The secondary source in the Los Angeles Times were lay persons at 47.8% followed by academicians/scholars/scientists/researchers at 46.3% and medical professionals at 23.9%. The secondary source in USA Today were also lay persons at 32.3% followed by academicians/scholars/scientists/researchers at 25.8% and medical professionals at 19.4%.

Length of stories

The Los Angeles Times had the lowest percentage of small stories (0-6 column inches) at 1.5% of its total stories followed by the New York Times at 4.9% and USA Today at 9.7%. USA Today had the highest percentage of medium stories (6-18 column inches) at 80.6% of its total stories followed by the New York Times at 52.8% and the Los Angeles Times at 52.2%. The Los Angeles Times had the highest percentage of long stories (18+ column inches) at 46.3% of its total stories followed by the New York Times at 42.3% and USA Today at only 9.7%.

Type of stories

USA Today had the highest percentage of event-based stories at 73.7% of its total stories followed by the New York Times at 68.3% and the Los Angeles Times at 67.2%. The Los Angeles Times had the highest percentage of issue/feature-based stories at 32.8% followed by the New York Times at 31.7% and USA Today at 26.7%.

Conclusion

A number of significant observations were made through this study regarding the coverage of the domestic and global AIDS/HIV situation by the New York Times, Los Angeles Times and USA Today for the period 1990 to 1994.

According to the Universal Almanac AIDS/HIV statistics (Wright, 1993), Sub-Saharan Africa, South and Southeast Asia and Latin America and the Caribbean have the highest percentage of AIDS/HIV cases in the world. However, these regions were featured less than 13% of the time by all three newspapers. There is no norm that coverage of the disease has to be proportionate to the incidence of disease in an area. However, this phenomenon could possibly contribute to the belief among American readers that the problem is not so serious in these world regions.

The U.S. was mentioned more than 97% of the time (as might be expected since the dailies examined were of U.S. origin) in all the newspapers and Western Europe received the second highest mentions in the New York Times and Los Angeles Times. This, again could contribute toward the skewed impression that AIDS/HIV is more prevalent in Western Europe than it really

is. The Middle East and North Africa, regions also high in the range of world statistics for AIDS/HIV, were mentioned less than 11% of the time in all three newspapers.

USA Today differed from the other two newspapers in that it devoted the second highest coverage to U.S. neighbors Mexico and Canada and Central and South America and the Caribbean instead of Western Europe. This is indicative of a tendency to follow actual statistics and also of the fact that geographical proximity may have determined the high coverage of these regions.

Also, of the three newspapers, the Los Angeles Times and USA Today devoted more coverage to the rest of the world than the New York Times despite the fact that the New York Times devoted more stories to the topic. Asia and Oceania were covered the least while Africa, the Middle East and Eastern Europe received medium coverage. This result, once again, is indicative of geographic proximity being an important agenda-setting factor, and it corroborates Singer, et al.'s (1991) study which established a positive relationship between geographic proximity and the coverage of international hazard news. Also, the claim by international media researchers that the U.S. media tends to focus more on itself and Western Europe, and that its overall international coverage is low, is supported by the findings of this study.

As far as the tone of the stories was concerned, South Asia, although it wasn't covered extensively by any of the newspapers, was covered positively the most while Japan and East Asia got nearly equally low and mostly negative coverage. This is surprising since South and Southeast Asia has the highest AIDS/HIV cases after Sub-Saharan Africa and East Asia has one of the lowest figures. Coverage of Africa and the Middle East was also negative while the U.S. and Western Europe were covered more negatively than positively but not as negatively as Japan, East Asia, Africa and the Middle East. Eastern Europe and Oceania, which are low on the scale of world AIDS/HIV statistics, were covered positively overall.

The U.S., Western and Eastern Europe and Oceania had the most positive photographs/illustrations while regions with high AIDS/HIV statistics such as South, Southeast and Eastern (including Japan) Asia, the Middle East, Africa and Central and South America and the Caribbean had the most negative photographs/illustrations.

The sources used most were academicians, scholars, scientists and researchers and politicians, government officials and administrators. This result supports the findings of Watts' (1993) study which showed that scientists and researchers play an important role in laying the agenda for the coverage of AIDS/HIV.

The overall conclusion from the findings of this study is that the international coverage of AIDS/HIV by the New York Times, Los Angeles Times and USA Today was very low compared to the domestic coverage. Geographic proximity seemed to have played a role in determining the coverage devoted to a region but not the tone. Negative biases existed mainly against Africa, the Middle East, Japan and South and East Asia. Except for Japan, which seems to have gotten a raw deal, the other regions are Third World nations.

Proponents of the New World Information Order would argue that this is indicative of prejudice and lack of concern for other regions. Others may opine that it is only natural for an American daily to focus mainly on the U.S. However, it seems that the regions which mostly got low coverage were the Third World regions and the bulk of the meagre coverage they received was mostly negative. One may ask the question — What can a positive story about AIDS in Africa be? The answer to that would be that there are several concerted international and other efforts being made to check the spread of the virus in several African, Asian, the Caribbean, South and Central American nations. Important findings result from such efforts — findings from which both developed and developing nations can benefit and learn from.

The hypothesis that the AIDS/HIV coverage by the three newspapers of the Third World would be mostly negative was supported by these findings. So were the findings of previous studies which assert that American dailies tend to focus on Western Europe when it comes to international news. The finding that most of the Third World regions where the incidence of the disease is high receive low but negative coverage has two disadvantages. First, the American public is led to believe, and accurately so, that the incidence of the virus is high in these regions. But they do not get to read about the efforts being made to slow the epidemic. This lends the stories with a sensational aura where one is led to believe that most Third World nations are sitting

on an AIDS "time bomb." Second, the meagre amount of coverage also contributes toward unawareness of the true situation of the epidemic in the rest of the world — a world where, hypothetically speaking, national boundaries are shrinking at an amazing pace.

Further research on the pattern of coverage of AIDS/HIV by newspapers in other world regions would allow for an interesting comparison with the U.S. media's coverage pattern, and illustrate the regional and tonal biases other world regions may have in their coverage of the topic.

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Table 1
Frequencies of World Region Mentions in 221* Stories Calculated as a Percentage of the Total
Stories for Each Newspaper — 1990-1994

	<u>New York Times</u>	<u>Los Angeles Times</u>	<u>USA Today</u>
U.S.	120 (97.6%)	66 (98.5%)	31 (100%)
U.S. Neighbors (Canada & Mexico)	5 (4.1%)	8 (11.9%)	5 (16.1%)
Central & South America/Caribbean	6 (4.9%)	7 (10.4%)	4 (12.9%)
Western Europe (including Greece and Turkey)	20 (16.3%)	13 (19.4%)	4 (12.9%)
Eastern Europe (including former Soviet Union, Yugoslavia, Albania)	6 (4.9%)	7 (10.4%)	1 (3.2%)
Middle East/North Africa	12 (9.8%)	7 (10.4%)	2 (6.5%)
Africa (Sub-Sahara)	15 (12.1%)	8 (11.9%)	2 (6.5%)
South Asia (India, Pakistan, Nepal, Afghanistan, Sri Lanka)	6 (4.9%)	5 (7.5%)	3 (9.7%)
"Four Tigers" (Taiwan, Hong Kong, Singapore, South Korea)	3 (2.4%)	2 (3%)	2 (6.5%)
Japan	4 (3.3%)	5 (7.5%)	3 (9.7%)
Other East Asia (including China)	6 (4.9%)	7 (10.4%)	2 (6.5%)
Oceania (Australia, New Zealand and other Pacific Islands)	2 (1.6%)	3 (4.5%)	2 (6.5%)
United Nations/Other Similar Organizations	14 (11.4%)	7 (10.4%)	5 (16.1%)
TOTAL	219 (178.2%)	145 (216.2%)	66 (212.9%)

N = 427**

* Distribution of 221 Stories : New York Times = 123
Los Angeles Times = 67
USA Today = 31

** N in this table stands for the total number of region mentions in the 221 stories studied. Multiple counting occurred in cases where more than one world region was mentioned in a single story. The same explanation applies to the total percentages which add up to more than 100 for each newspaper. It is important to note that the percentage shown for each region for each newspaper denotes what percent of the total region mentions studied for that newspaper mentioned that particular region.

Note: The category "other" was left out since a negligible number of cases were coded for it.

Table 2
Distribution of U.S. and Non-U.S. Mentions in 221 Stories — 1990-1994

	<u>New York Times</u>	<u>Los Angeles Times</u>	<u>USA Today</u>
U.S.	120 (54.8%)	66 (45.5%)	31 (47%)
Non-U.S.	99 (45.2%)	79 (54.5%)	35 (53%)
TOTAL	219 (100%)	145 (100%)	66 (100%)

N = 427*

Chi-Square = 3.07 (d.f. = 2)

p ≤ 0.3 (n.s.)

* The N in this table, as in Table 1, stands for the total number of region mentions in the 221 stories studied for all three newspapers and not the total number of stories itself.

Table 3
Frequencies of Tone of 221 Stories in the New York Times, Los Angeles Times and USA Today
(Combined) for Each World Region — 1990-1994

	Positive	Negative	Neutral	TOTAL
U.S.	89 (41%)	106 (48.8%)	22 (10.2%)	217 (100%)
U.S. Neighbors (Canada & Mexico)	6 (33.3%)	11 (61.1%)	1 (5.6%)	18 (100%)
Central & South America/ Caribbean	6 (30%)	13 (65%)	1 (5%)	20 (100%)
Western Europe (including Greece and Turkey)	13 (35.1%)	20 (54.1%)	4 (10.8%)	37 (100%)
Eastern Europe (including former Soviet Union, Yugoslavia, Albania)	6 (42.9%)	7 (50%)	1 (7.1%)	14 (100%)
Middle East/North Africa	4 (19%)	16 (76.2%)	1 (4.8%)	21 (100%)
Africa (Sub-Sahara)	4 (16%)	20 (80%)	1 (4%)	25 (100%)
South Asia (India, Pakistan, Nepal, Afghanistan, Sri Lanka)	11 (78.6%)	3 (21.4%)	0 (0%)	14 (100%)
"Four Tigers" (Taiwan, Hong Kong, Singapore, South Korea)	2 (28.6%)	5 (71.4%)	0 (0%)	7 (100%)
Japan	2 (16.7%)	10 (83.3%)	0 (0%)	12 (100%)
Other East Asia (including China)	4 (26.7%)	11 (73.3%)	0 (0%)	15 (100%)
Oceania (Australia, New Zealand and other Pacific Islands)	5 (55.6%)	4 (44.4%)	0 (0%)	9 (100%)
United Nations/Other Similar Organizations	6 (23.1%)	19 (73.1%)	1 (3.8%)	26 (100%)

N = 435*

* N is more than 221 since multiple counting occurred when a single story with a positive, negative or neutral tone mentioned more than one world region. The percentage for each region for each tone denotes the tone as a percentage of the total number of stories mentioning the particular region.

Note: The regional category "other" was left out since a negligible number of cases were coded for it.

Table 4
Distribution of Tone of 221 Stories in the New York Times, Los Angeles Times and USA Today
(Combined) for U.S. and Non-U.S. Regions — 1990-1994

	Positive	Negative	Neutral	TOTAL
U.S.	89 (41%)	106 (48.8%)	22 (10.2%)	217 (100%)
Non-U.S.	69 (31.7%)	139 (63.8%)	10 (4.5%)	218(100%)

N = 435*

Chi-square = 11.24 (d.f. = 2)

p ≤ 0.01

* As in Table 3, N is more than 221 since multiple counting occurred when more than one world region was mentioned in a single story with a positive, negative or neutral tone.

Table 5
**Frequencies of Tone of Photographs/Illustrations in Stories Examined in the New York Times,
Los Angeles Times and USA Today (Combined) for Each World Region — 1990-1994**

	Positive	Negative	Neutral	TOTAL
U.S.	31 (42.5%)	19 (26%)	23 (31.5%)	73 (100%)
U.S. Neighbors (Canada & Mexico)	3 (30%)	4 (40%)	3 (30%)	10 (100%)
Central & South America/Caribbean	2 (16.7%)	4 (33.3%)	6 (50%)	12 (100%)
Western Europe (including Greece and Turkey)	5 (33.3%)	4 (26.7%)	6 (40%)	15 (100%)
Eastern Europe (including former Soviet Union, Yugoslavia, Albania)	2 (50%)	1 (25%)	1 (25%)	4 (100%)
Middle East/North Africa	1 (11.1%)	5 (55.6%)	3 (33.3%)	9 (100%)
Africa (Sub-Sahara)	3 (25%)	6 (50%)	3 (25%)	12 (100%)
South Asia (India, Pakistan, Nepal, Afghanistan, Sri Lanka)	1 (16.7%)	4 (66.7%)	1 (16.7%)	6 (100%)
"Four Tigers" (Taiwan, Hong Kong, Singapore, South Korea)	1 (20%)	3 (60%)	1 (20%)	5 (100%)
Japan	1 (20%)	3 (60%)	1 (20%)	5 (100%)
Other East Asia (including China)	2 (25%)	4 (50%)	2 (25%)	8 (100%)
Oceania (Australia, New Zealand and other Pacific Islands)	2 (66.7%)	1 (33.3%)	0 (0%)	3 (100%)
United Nations/Other Similar Organizations	3 (37.5%)	2 (25%)	3 (37.5%)	8 (100%)

N = 170*

Distribution of photographs/illustrations:

<u>New York Times</u> =	47
<u>Los Angeles Times</u> =	35
<u>USA Today</u> =	18
TOTAL	100

* N is more than 100 for the reason that two or more world regions may have been mentioned in a story with one or more photograph(s)/illustration(s). The percentage for each region for each tone denotes the tone as a percentage of the total number of stories with photographs/illustrations which mention that region.

Note: The regional category "other" was left out since a negligible number of cases were coded for it.

Table 6
Distribution of Tone of Photographs/Illustrations in the Stories Examined in the New York Times, Los Angeles Times and USA Today (Combined) for U.S. and Non-U.S. Regions — 1990-1994

	Positive	Negative	Neutral	TOTAL
U.S.	31 (42.5%)	19 (26%)	23 (31.5%)	73 (100%)
Non-U.S.	26 (26.8%)	41 (42.3%)	30 (30.9%)	97 (100%)

N = 170*

Chi-square = 6.84 (d.f. = 2)

p ≤ 0.05

* As in Table 5, N is more than 100 (total number of photographs/illustrations) since multiple counting occurred in cases where more than one world region was mentioned in stories with one or more photograph(s)/illustration(s).

Coding Sheet for Newspaper Coverage of AIDS/HIV -1990-1994
 Nilanjana Bardhan
 April 1996

1. Case Number _____03/
2. Date _____/_____/____04-09/
3. Title of Newspaper _____10/
 1 = New York Times 2 = Los Angeles Times 3 = USA Today
4. Headline of Article _____
 Tone of Headline _____11/
 1 = Positive 2 = Negative 3 = Neutral
5. Name of Country(ies)/Region(s) Mentioned in Headline _____
6. Number of Paragraphs in Story _____12-13/
7. Tone of Story Lead _____14/
 1 = Positive 2 = Negative 3 = Neutral
8. Tone of Story _____15/
 1 = Positive 2 = Negative 3 = Neutral
9. Country(ies)/Region(s) Mentioned in Story _____
10. World Regions Represented in Story
 - U.S. _____16/
 1 = Yes 2 = No
 - U.S. Neighbors (Canada and Mexico) _____17/
 1 = Yes 2 = No
 - Central +South America/Caribbean _____18/
 1 = Yes 2 = No
 - Western Europe (including Greece and Turkey) _____19/
 1 = Yes 2 = No
 - Eastern Europe/Former Soviet Union (including Yugoslavia, Albania) _____20/
 1 = Yes 2 = No
 - Middle East/North Africa _____21/
 1 = Yes 2 = No
 - Africa (Sub-Sahara) _____22/
 1 = Yes 2 = No
 - South Asia (India, Pakistan, Nepal, Afghanistan, Sri Lanka) _____23/
 1 = Yes 2 = No
 - "Four Tigers" (Taiwan, Hong Kong, Singapore, South Korea) _____24/
 1 = Yes 2 = No
 - Japan _____25/
 1 = Yes 2 = No
 - Other East Asia (including China) _____26/
 1 = Yes 2 = No
 - Oceania (Australia, New Zealand and other Pacific Islands) _____27/
 1 = Yes 2 = No
 - United Nations/Other Similar Organizations _____28/
 1 = Yes 2 = No
 - Other _____29/
 1 = Yes 2 = No
11. Type of Story _____30/

BEST COPY AVAILABLE

1 = Issue/Feature-based 2 = Event-based 3 = Other

12. News Sources Used in Story

Professionals (Doctors, nurses and others with medical degrees) __31/

1 = Yes 2 = No

Academic Scientists/Scholars/Researchers __32/

1 = Yes 2 = No

Politicians/Government Officials/Administrators __33/

1 = Yes 2 = No

Lay Persons (including patients, prostitutes) __34/

1 = Yes 2 = No

Other _____ __35/

1 = Yes 2 = No

13. Number of Photographs/Illustrations __36/

14. Overall Tone of Photographs/Illustrations

1 = Positive 2 = Negative 3 = Neutral 0 = No Photo __37/

15. Length of Story __38/

1 = Small (1-6 Col. in.) 2 = Medium (6-18 Col. in.) 3 = Long (18+ Col. in.)

The Quality of Interactive Computer Use Among HIV-Infected Individuals

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Much of the research on empowering the health care consumer has focused on the disease-prevention benefits of lifestyle choices (McAlister, et al., 1980; Blackburn, et al., 1984; Farquhar et al., 1990). But the consumer is a key player in health care reform even after diagnosis of a disease, and a consumer with a deeper understanding of the diagnosis and available means of support is much better equipped to cope with the illness and use the health care system effectively and efficiently. Such a consumer would know the essential variables that define the need for health care, and could change their mind set and behaviors in ways that would improve their own health status and influence the course of their illness, both physically and, through improved coping skills, emotionally. They could lower their psychological distress, and use health care services more responsibly and efficiently, so that doctors, nurses and other health care professionals could devote more time to situations where their valuable time is better spent. A growing body of research indicates these benefits of providing support and information (Vickery, et al., 1983; Mumford, et al., 1984; Long, et al., 1993).

These education and support benefits have been achieved in a variety of ways, ranging from pamphlets to one-on-one teaching sessions, and involving varying intensities of social support. A typical and perplexing tradeoff is between inexpensive, mass-produced and generic materials (e.g., pamphlets) and labor-intensive individual attention over protracted periods of time. The former are generally designed to cover a broad range of individuals and situations and thus may be less likely to motivate or affect specific individuals. Personalized, intensive approaches may do better at motivating and training individuals, but the costs are substantial and may be prohibitive.

However, the distinction is not simply that between mass and interpersonal communication, because there have been successful media-based campaigns to inform and activate health care consumers. But these successes have not come about by broadcasting a single, uniform message to everyone. Instead, community-wide prevention programs have involved a complex mix of messages directed at a variety of outcomes, such as motivation, normative beliefs, and behavioral skills (Blackburn, et al., 1984; Farquhar et al., 1990). The level of effort (and expense) in such cases is substantial, and there is much waste as specific messages reach those lacking the specific need or situation for which they were designed. Alternatively, mammography and smoking-cessation efforts have been more much more successful when pre-screening allows campaigners to provide consumers with change messages tailored to their own perceptions of threats and barriers (Strecher et al., 1986; Skinner, et al., 1994). This tailoring makes the message-delivery stage highly efficient, but it is dependent on a cumbersome and problematic information-gathering process beforehand.

Thus, the key issue may be finding cost-effective ways to deliver a range of services (e.g., information, social support, skills training, decision or planning tools, etc.) to individuals so that they can make their own selections (do their own tailoring). Ideally, this should offer the high-quality professional expertise typical of both mass communication and individual professional attention, maintain the cost-effectiveness of mass communication by technologically multiplying expert senders to serve many receivers, and yet serve individuals with widely different needs and situations.

We suggest that computer-based systems may offer precisely this mix by building into their content the needed blend of professional expertise and individual control that the

above analysis suggests is needed. Taking examples from the CHES system (Comprehensive Health Enhancement Support System), on which this paper's analysis is based, the same information (e.g., side effects of a drug) can appear as a brief response to a direct question, in several different places in context with related topics (e.g., an article on side effects generally, another on living with the disease), or as part of the process of evaluating and weighting criteria in a decision analysis tool. Modern connections through a central host allow users to address issues not found in programmed information by email connections to disease experts, and also provide the opportunity to share information and support with others facing the same disease. Self-assessment, decisions, and planning for behavioral change are assisted by theory-based programs that are determinedly advisory rather than directive.

In other words, CHES and similar computer-based systems provide considerable expertise and expert support to people facing a health crisis, but the user can both choose the type of information or support they need, and direct those choices very specifically in terms of content. Beyond this, however, we believe that the way individuals use these systems, while less tangible, may be equally important. Because such systems not only require constant menu choices (decisions) by users, but also usually employ interactive interviewing so that the user's responses alter the program's side of the dialogue as well, using such a system can be much more involving than a mass communication campaign (Tennyson, 1981). In addition, it may even be reasonable to talk about the degree of interactivity of use, or the degree to which exchanges of messages are dependent, not just on the immediately prior message, but on all previous ones, as in an intense, focused interpersonal communication (Rafaelli, 1988).

Of course, tailored information, and even the self-selection and self-tailoring offered by menu choices, do not necessarily lead to greater involvement and interactivity. Selection could be sporadic and based on momentary reactions and whims, and these should produce little more active processing and elaboration than casually reading a magazine. But if selections are thoughtful, based on introspection about one's needs, and are made so that succeeding interactions build on prior ones, then program use should be much more efficacious, just as it is when mass media use matches gratifications sought (Blumler, 1979; Levy & Windahl, 1985). Thus, one main purpose of the present research was to assess whether use of the CHESS system showed evidence of involvement and interactivity.

CHESS currently provides PC-based (286 or better) services on a number of topics (HIV, breast cancer, academic crisis, adult children of alcoholics, stress, sexual assault), with others currently being developed. When the present data was gathered, the HIV program contained over 400 answers to questions commonly asked by HIV-positive individuals, nearly 300 longer articles, a tutorial on using a broad range of health and support services, first-person stories of HIV-positive individuals, modem-based connections to experts and to other HIV-positive people, assessments of the individual's risk of transmitting the HIV virus, decision analysis tools, and behavior change planning and assessment. To further aid users in getting quickly to needed content, the system was organized in a hierarchical structure of topics and subtopics, so that the enormous volume of the program could be quickly reduced to a manageable set from which to make selections.

The system can be organized into three major areas of help:

Information Tools

Questions and Answers is a compilation of one to five screen answers to 442 common questions HIV-infected people have about AIDS and HIV. The majority of the content was developed to address needs expressed in written surveys and focus groups by HIV-infected individuals and service providers.

Instant Library indexes and stores 285 publications, abstracts of scientific articles, brochures, and other materials. Whereas *Questions and Answers* is designed to be brief, *Instant Library* provides more depth and detail.

Personal Stories are written in the first-person by professional journalists from in-depth interviews. They describe 24 people who have experienced and dealt with various issues and crises resulting from HIV infection. Users can read 300-500 word overviews, and can select more detailed "expansions" on specific topics.

Decision/Planning Tools

Decision Aid helps people think through difficult decisions by providing information about options and criteria often considered in making a choice. Users can quantify their perceptions and arrive at their own decision.

Action Plan combines statistical decision theory and change to help users think through how to implement a decision they have made. It predicts the likelihood of success in implementing their change, and also identifies ways the user can strengthen prospects for successful implementation.

Support Tools

Discussion Group is a computer-mediated support group available 24 hours a day, 7 days a week. It allows anonymous, nonthreatening communication among people facing a similar crisis or concerns. Users share information, experiences, hopes and fears, give and receive support, and offer different perspectives on common issues.

Expert Mail provides electronic mail service that allows users to ask experts anonymous questions and receive confidential responses within 48 hours.

CHESS was initially evaluated in a random-assignment experiment, in which experimental subjects had CHESS in their homes for three or six months. While use varied considerably, CHESS was used very heavily, an average of more than once a day, with Discussion Group use accounting for three-quarters of all use. Compared to control subjects, experimental subjects reported improved quality of life and less expensive use of the health care system.

Despite the overall differences between experimental and control groups, these results do not specify what component of CHESS was having these effects. Since Discussion Group accounted for the vast majority of time, should this suggest that electronic support groups are the main source of benefit? If so, these benefits could be delivered much more widely and cheaply than a system that also contains painstakingly researched and constructed information and decision support tools. Apart from Discussion Group, is it simply the frequency of CHESS use that accounts for effects, or does degree of involvement and coherence of use matter.

Methods

Sample. The sample for this study was selected from an early cohort of 36 HIV positive individuals who were part of a larger quantitative study of CHES effects. Participants were drawn from a two cities, one medium and large, in the upper midwest, and were largely caucasian, under 35 and male. The larger study ultimately involved 204 individuals who were HIV positive in a design that randomly assigned CHES computers for periods of three to six months. Overall, this larger study found significant and enduring positive outcomes for participants who used CHES, especially for those who had the software for a longer period of time (Authors, 1995).

Participants in the study were surveyed before and after receiving CHES. For the entire study, CHES effects were found for four of eight quality-of-life indicators: level of cognitive function, participation in health care decisions, amount of social support, and negative emotions. Pre-test to post-test change scores were calculated for each of the 36 participants for each of the four indicators, and individuals who either did not change or changed positively were identified for each of the four indicators. The six participants who changed on three of the four (Shipmate, Hunter, Liberace) or on two of the four (Gdaayd, Smitty, Fubar) with zero-change on none of the four indicators were designated "Changers." One participant did not change on three of four (Checkers) and three did not change on two of four (Pat, Sheik, Clay). Two others (Yug, Bear) did not change on two of the four, but they had substantial positive changes on one of the other two (Yug on negative emotions, Bear on cognitive functioning). These six were classified as Nonchangers.

Measures. To measure activity with CHESS, we used computer records of keystroke activity to construct several indicators. First, we calculated the number of times a user turned CHESS on as well as the total time spent with CHESS at each use. Either measure alone could be misleading. Number of logons doesn't show depth of use; total time ignores differences among users in reading and differences among CHESS tools in time to use them.

Second, we selected two participants who were not part of this analysis to do a careful keystroke analysis of their CHESS use and help us evaluate activity with CHESS. Based on this keystroke data, we developed three general areas that would seem to represent "active" use: 1) levels of involvement with CHESS tools, or how deeply into any one tool the user delves; 2) the use of links from one tool to another, or how one use does or doesn't affect and relate to a previous use; and 3) coherence of overall use, or whether topics or problems manifest themselves regularly through use.

Based on the pilot analysis with keystroke data of participants not selected for this analysis, we developed criteria for assigning scores for each of these indicators of activity. For our first measure, *levels of involvement* with CHESS tools, we scored users separately for CHESS tools groups of Information (Questions and Answers, Instant Library and Personal Stories), Decision/Planning (Decision Aid and Action Plan) and Support (Discussion Group and Expert Mail). For information tools, any one use (with a use defined as spending time inside the actual tool of at least 5 seconds) of a tool without another use in immediate succession was considered low involvement. Using an information tool two or three times in succession (e.g., reading a second or third Question & Answer) counted as medium involvement, and four or more times was high involvement.

For decision/planning tools, Action Plan was considered low involvement if users didn't type a goal and spent less than five minutes in the tool; it was medium if users typed a goal and spent up to 10 minutes. High involvement was scored if they typed a goal and stayed in 10 minutes or more. Decision Aid was low if the user spent less than a minute, medium for one to six minutes and high if more than six minutes in the tool. For support tools, we used the average use of those tools during the larger study to benchmark our involvement levels. We differentiate between reads and writes, with more involvement considered for actually writing a message in either Discussion Group or Expert Mail. The content of these messages was also evaluated.

For *links*, we counted the number of built-in links used in a row, with higher numbers meaning greater involvement. Non-built-in links require a greater degree of subjectivity and require a closer look at the content of choices and messages. For example, if a user selects "How Can I Use CHESS To Help Me Feel Less Lonely?" in Questions & Answers and then uses Discussion Group for the first time soon after, that suggests a link because that Q&A suggests using Discussion Group.

For *thematic coherence*, we used several approaches. First, we looked at the subtopics accessed in CHESS. For example, if a user spent most of his time using tools in the subtopic "You are not alone," that would provide some evidence for a theme. The level of involvement with those tools would add to that evidence. Individuals were also evaluated for thematic similarities in different subtopics. For example, if a user asked about AZT side effects in Expert Mail, selected Personal Stories under "Health Care" and followed an AZT expansion, and also read some Instant Library items about AZT, that would indicate a strong thematic similarity, although related tools were used in different subtopics.

Procedures. To apply these criteria to the 12 participants, the data had to be translated from keystrokes to a narrative. Whenever a user made a keystroke in CHESSE, the computer recorded and stored it. Narratives of the data were created from this keystroke data for each participant at the level of a CHESSE session -- a period of use within one day, defined by a separate log on and off. Transcripts of messages read and sent in Discussion Group and Expert Mail were also evaluated in the context of these sessions. Using the narratives, the three areas of activity were evaluated for each of the 12 participants.

Results

As a first cut at measuring activity with CHESSE, we looked at overall differences between changers and nonchangers in their use of CHESSE. We used number of logons and minutes using CHESSE to group our 12 subjects into light, medium or heavy CHESSE users. These results are presented in Table 1. Although our categories are arbitrary and based on these CHESSE users' behavior, the similarities within and differences between levels of use are clear and striking. Comparing changers to nonchangers in CHESSE use, we were surprised to see that the nonchangers did not clump into the light use category. In fact, three of the six nonchangers were in the heavy CHESSE use category, while the dominant use category for changers was medium CHESSE use (four of six). CHESSE activity as measured by amount of use does not seem to capture differences between changers and nonchangers very obviously.

On the other hand, when we look at changers and nonchangers by how they use CHESS, applying our three areas of activity, some interesting differences emerge. Table 2 shows involvement for each category of CHESS tool separately for light, medium and heavy CHESS users. Results for links and thematic coherence are presented in text.

Light users. For light users, nonchanger Pat had a slightly higher degree of involvement than changer Hunter in "hard information" tools. Pat selected two Q&A items in a row. Hunter, in comparison, never used any hard information tools. However, Hunter showed more involvement than Pat in decision-making tools, since Hunter scored medium on Decision Aid, while Pat scored low. Pat did not use the support tools; Hunter did enter discussion group once, but spent little time there and did not write a message. No sound analysis of themes or links could be derived from either user, since they both used the system so little.

Medium users. Table 2 shows that changers Gdaayd, Shipmate, Smitty and Fubar scored higher levels of involvement than nonchangers Sheik and Bear on hard information tools and on support tools. All four changers scored high degrees of involvement in at least two of the three tools in hard information. Neither of the nonchangers had a single instance of high involvement in any of these tools. In addition, three of the four examples of medium involvement that were scored for the nonchangers were outside of HIV/AIDS and in other CHESS content. The changers ventured into Action Plan and Decision Aid slightly more often than nonchangers, but only Gdaayd used an AIDS planning aid beyond a low involvement level. Neither Bear nor Sheik used Ask an Expert, while three of the four

changers used that tool at least once (with persistent and pointed questions by Shipmate and Smitty). For Discussion Group, the changers were either medium or high, with many reads and writes. Smitty and Shipmate both wrote Discussion Group messages clearly related to their other CHESS use, while Gdaayd and Fubar offered support to others. Nonchanger Sheik didn't write in Discussion Group or Expert Mail, while Bear read Discussion Group fairly often and wrote sometimes. His 11 writes didn't share much in common among themselves nor did they relate to tools he used in other parts of CHESS.

The four changers demonstrated more instances of using links than the two nonchangers. All four used built-in links to explore related topics in hard information tools. During three separate days, Fubar used built in links to connect hard information tools. Gdaayd, Shipmate and Smitty each used built in links once to navigate among hard information tools. Neither nonchanger Bear nor Sheik used them. The changers also had more instances of creating their own links during CHESS usage. Shipmate twice delved into "alternative medicine" information after reading stress and health items in unrelated categories. Smitty showed no signs of generating his own links while using CHESS. Gdaayd demonstrated one self-generated link when he read Q&A item: "How can I use CHESS to help me enjoy a healthy sex life?" and then read seven Instant Library items about telling partners about HIV status before sex in the same session. On Fubar's first day of use, he employed a self-generated link when after reading several formally linked items about effective communication with physicians, he selected "Taking Charge of Your Health Care" as a Personal Stories topic to select story excerpts. Neither Bear nor Sheik generated links.

Similarly, when we turn to overall thematic coherence, three of the four changers exhibited stronger thematic coherence throughout their CHESS usage. Gdaayd's most frequent topic of exploration was safe sex, which he first broached his second day of use and visited on two more days, under the subtopic "Breaking the News." Smitty had three topics: health care issues, financial matters and safer sex. He visited all these areas on at least three different days, while also demonstrating high degrees of involvement at least once in each of these themes. Shipmate's main theme seemed to be physical and mental health, with an emphasis on how the two interact. He visited these themes on more than three separate days during his use and had both formal and informal links among items in this theme. Fubar was the only changer who did not exhibit a theme throughout his CHESS time. However, Fubar also tended to explore one subject to exhaustion per day, using high degrees of involvement within one tool and formal links between tools in pursuit of his subject. Nonchanger Bear had no real opportunity to develop thematic links, since he only used support tools after his first day of CHESS use. Even in his first day of use, Bear's selections bore little relationship to ones preceding them. Nonchanger Sheik also had little thematic coherence of use inside HIV/AIDS (he did use the Adult Children of Alcoholics module with a medium level of involvement).

Heavy users. Liberace, the only heavy-use changer, never progressed beyond a medium level of involvement in hard information tools. Neither did nonchanger Checkers. However, nonchanger Clay scored high degrees of involvement at least once in two of the three hard information categories. Nonchanger Yug had at least one instance of high involvement in each of the three hard information tools, at least two instances in two of the three.

Nonchanger Checkers and changer Liberace used decision/planning tools casually, although nonchangers Clay and Yug each had two or more heavy uses of Action Plan. In discussion group, Changer Liberace was the only heavy user who was positive in tone and who could be characterized as "giving," a tone the medium changers also projected. Liberace and Gdaayd seemed to be the most giving of the 12 in this sample. Liberace took on a nurturant role throughout his 47 writes to Discussion Group. He consistently asked others if they needed to vent, gave them encouragement when they were down and refused to be negative, even when confronted with his own problems. His Expert Mail question about wanting to stay in the nursing profession -- which he emphasized as important to him several times in Discussion Group -- further solidified his role as a nurturer. One of his Expert Mail questions was for a friend, not himself. Checkers, the most nonchanging, didn't use Expert Mail and read far more Discussion Group items than he wrote. When he did write to Discussion Group, Checkers often expressed anger, provided little emotional support to others and drew criticism for repeatedly joking about being drunk online from users sensitive to other CHESS users' alcohol problems.

Nonchanger Clay seemed desperate for answers to some of his questions about depression. He had technical difficulties with Discussion Group that he vented with obscenities toward the system. Several of his questions about depression went unanswered. All of his Expert Mail messages indicated he was in an emotionally low spot and hinted at problems with alcoholism, smoking and emphysema, and declining health because of AIDS. Most of Clay's writes to Discussion Group convey a sense of loss, fear, anger and lack of trust. He offered no support to other users. Nonchanger Yug's Discussion Group use bears the most relationship of all 12 in our sample to the rest of his

CHESS use: It is primarily concerned with alcoholism, coming out and not isolating himself. He explored all these issues with high degrees of involvement in other CHESS tools. Yug credited his online support group for helping him stop drinking and encouraging him to think more positively (his posttest showed a significant change here). Most of his writes were requests for help or companionship, but some of his Discussion Group experience could have been considered negative: His identity was revealed at a gay bar as "Yug" on CHESS, and he was flamed for being anti-gay.

Changer Liberace used built-in links twice in hard information categories. He also created links twice. Nonchanger Clay also created two links. The first was when, two days after he read three Instant Library items about being African American and having AIDS, Clay searched "Personal Stories" for the topic "discrimination." The next self-generated link occurred immediately after Clay used Stress Assessment and went to Action Plan where he typed in as a goal "practice relaxation." Nonchanger Yug also created links. In his first day of use, Yug selected two items about having relationships while being HIV-Positive. Three days later, he typed, "Having a relationship with someone like me" as his goal in Action Plan. Checkers did not create any links.

All four heavy users developed some sort of theme over the course of their use. Of the four, nonchanger Checkers' was the least coherent, since he spent little time in hard information tools, showed no evidence of a theme in decision-making tools, and wrote few entries in Discussion Group, with none bearing on his theme of sex and AIDS. Yug covered many topics thoroughly – coming out, alcoholism, being the adult child of an alcoholic. Clay, like Yug, spent much time with high levels of activity in several areas, including breast cancer and Adult Children of Alcoholics, which were modules outside of AIDS/HIV.

Liberace, like Yug and Checkers, delved into many topics, not sticking with one or two general themes. His role in Discussion Group seems to bear some relationship with his most apparent HIV theme – loneliness. Liberace also spent considerable time in modules outside of AIDS/HIV.

To summarize, we have reworked Tables 2 through 4 into a single overall table (see Table 5) that locates all 12 CHESS participants by amount of involvement in CHESS Tools. We clarified and reduced Tool involvement by creating a total score for each kind of tool: For Information and Decision/Planning tools, we created a total score based on number of low, medium and high involvement uses; for Support tools, we counted number of writes in Discussion Group or Expert Mail (to indicate more involved use than simply reading). The table thus shows amount of CHESS use weighted by the level of involvement.

This summary of tool involvement shows the changers group together at a moderate level of total CHESS involvement. This is particularly clear for medium changers Gdaayd, Fubar, Shipmate and Smitty. All four medium changers used tools with medium involvement, but qualitative analyses showed that their use of links and their thematic coherence was higher than for light or heavy CHESS users. However, heavy changers and nonchangers were hard to distinguish from each other by quality of CHESS use. Changer Liberace and nonchangers Yug and Clay used CHESS quite similarly: they all had areas of high involvement, they all used Discussion Group especially heavily, they all followed built in links and made their own, and they were all thematically scattered inside and outside of AIDS in CHESS. Nonchanger Checkers was the most like what we expected to find among nonchangers who heavily used CHESS: little if any high involvement in tool use, little use of decision tools, only a few links compared to other heavy users, and very little

thematic coherence in his CHESS use. Clearly, medium involvement with CHESS in a focused, thematic manner can yield as much or more of CHESS quality of life benefits as heavy CHESS use, whether that heavy use is involved or not. Or more generally, it is focused, involved use of CHESS that leads to positive outcomes, not total amount of use.

A qualitative examination of heavy users Clay and Yug may help explain why they are nonchangers despite their involved CHESS use. Their use, although heavy and often with a high degree of involvement, was more scattered thematically than the use of medium changers. Unlike other CHESS users (except Liberace), they also had lots of uses in modules outside of AIDS/HIV. Also unlike other users, both Clay and Yug indicated in Discussion Group or Expert Mail that they had serious substance abuse issues. Both also had some problems with the system and the people in it. Clay seemed more angry than any of the 12 subjects, with the possible exception of Checkers. Yug found Discussion Group late in his CHESS use, and he said it would have helped him more if he had found it sooner. He also credited that tool with getting him to face up to coming out and to stop drinking. We should also note again, that while Yug was classified as the sixth non-changer to provide equal numbers for comparison, he actually reported decreased negative emotions, along with no improvement in cognitive functioning and social support. Given this, it might be more accurate to say that Yug is actually a changer, much of whose change we did not measure with our quantitative survey!

Discussion

At minimum, it is clear that CHESS did allow its users considerable freedom to self-tailor their use (and the same is probably true for other complex computer-based systems). For example, the information tools used by the medium users (Table 3) varied across Questions & Answers, Instant Library, and Personal Stories. Smitty used both Q&A and Instant Library with substantial involvement, but made less use of Personal Stories, while Gdaayd's use of Q&A was superficial, but his use of Instant Library and Personal Stories was considerably more involved. Similarly, while almost all medium and heavy users made substantial use of Discussion Group, they varied considerably in how often they merely read postings by others as opposed to writing messages themselves. The qualitative analyses of themes further add to this picture of individuals having a high degree of control over their CHESS use.

Furthermore, while no direct and systematic test of interactivity is possible in this data, the definitions of medium and heavy use of information tools (using more than one of a category of tool in succession) suggest that using an initial example from a tool was often rewarding and stimulating enough to lead to subsequent uses within the same tool. Similarly, the use of existing links, creation of additional links on one's own, and the thematic consistency over time by a number of users further suggests that the system allowed a continuity or coherence of dialogue over time.

Turning to questions about just what in CHESS was responsible for its positive effects on quality of life, the evidence points to the nature of CHESS use even more than the amount of use. With the exception of Liberace and Hunter at the extremes of total amounts

of CHES use, those whose quality of life improved were among the most involved in their use of CHES' information tools. That is, even though Discussion Group accounted for the majority of all CHES uses and time spent with the system, total use and Discussion Group use appear less important than use of the information tools, especially if that use was at least somewhat sustained and involved.

While Hunter's use was so light as to leave him a nonentity as far as CHES was concerned, Liberace's use is anomalous within this framework. While he was almost completely uninvolved with CHES information or decision tools, his Discussion Group use was second only to Yug's, and his efforts to support others were impressive. It may be significant that Liberace improved more than anyone else on cognitive functioning, while his gains on negative emotion and participation in health care were far more modest. Perhaps keeping track of and emotionally supporting other CHES users through reading and writing messages was the real stimulus to his improved cognitive functioning.

Given the focus on involved use of information tools as the main impetus to quality-of-life effects, two heavy using non-changers (Clay and Yug) deserve comment. While their designation as heavy users is of course largely a result of Discussion Group use, they both were as involved (perhaps slightly more so) with information tools as the medium-using Changers. While their lack of change takes nothing away from the consistency of the Changers' behavior (information use could be regarded as necessary but not sufficient to produce change), it may be that their problems with substance abuse posed an additional barrier to change. And, as noted before, Yug's status as a Non-Changer is ambiguous as well.

Thus, in designing CHESS and similar systems, and in providing them to potential users, these results suggest that Discussion Group or chat-line functions will not be sufficient. A mix of information tools will probably be necessary to help individuals take control of and improve their quality of life. Beyond this recommendation to designers, however, this suggests that campaigners should be ready to make the information functions attractive and to communicate their importance to users, in order to stimulate as much constructive, involved use as possible.

A final issue involves the generalizability of these results. As currently constituted, CHESS resides on the hard disk of individual computers (with Discussion Group and Expert Main using a host computer as go-between to other stand-alone stations). While many such programs are being written, it is clear that much of the current excitement about computer-based information and support services involves Internet connections to a wide range of servers and services. CHESS is not currently available through the Internet, but the mix and range of services is quite similar to what one is soon likely to find (can now find in some exceptional cases) on the Internet. We would argue, therefore, that the results here are likely to have considerable applicability to Internet use. We should expect individuals to mix tools and services, pursue topics across services and tools, and generate sensible and coherent packages of information and support.

The caveat, however, must be that much content currently available through the Internet is more specialized and less systematic than a system such as CHESS. That is, what is available at many Internet sites is material that would correspond to one or two CHESS tools, but rarely if ever an integrated package that encourages cross-tool linkages. This makes linkage and interactivity more difficult and demands more initiative of the user than

does a CHESS-like system. Thus, the results of CHESS-like systems may represent a goal or maximum effect for Internet designers at present, but should also stimulate greater integration and greater efforts to encourage initiative by users.

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visits. JAMA. 1983;250:2952-2956.

Table 1. CHESS use as measured by logons and time spent for changers and nonchangers.

CHESS use	Light	Medium	Heavy
Changers			
	Hunter 7 logons 24.55 minutes	Gdaayd 55 logons 449.53 minutes	Liberace 170 logons 1865.80 minutes
		Shipmate 46 logons 624.90 minutes	
		Smitty 62 logons 327.88 minutes	
		Fubar 30 logons 494.87 minutes	
Nonchangers			
	Pat 7 logons 66 minutes	Bear 27 logons 404.75 minutes	Checkers 85 logons 1332.20 minutes
		Sheik 34 logons 130.72 minutes	Clay 124 logons 1258.73 minutes
			Yug 177 logons 218.5 minutes

Table 2
Light Users

	Hard Info			Decisions		Support	
	Library	Stories		Action Plan	Decision Aid	Discussion	Mall
Changers							
Hunter	None	1 low	None	1 medium	None	1 read, 0 writes low	None
NonChangers							
Pat	1 medium	None	None	1 Low	None	None	None

Table 3
Medium Users

	Hard Info			Decisions		Support	
	Q&A	Library	Stories	Action Plan	Decision Aid	Discussion	Mail
Changers							
Gdaayd	2 low	1 low 1 medium 1 heavy	1 low 1 medium 1 heavy	1 high	None	66 reads 20 writes high	1 write low
Shipmate	1 medium 1 high	2(1*) low 2 high	1 medium	1 Low	1 low	36 reads 5 writes medium	6 writes high
Smitty	1 low 3 high	1 low 1 medium 4 high	4 low 1 medium	1 low	1 low	36 reads 6 writes medium	2 writes medium
Fubar	1 low 1 medium 1 high	2 high	2 medium	1 low	1 low	32 reads 5 writes medium	None
Non-Changers							
Bear	1 low	2 low (1*) medium	2 low	None	None	27 reads 11 writes medium	none
Sheik	3 low (1*) medium	(2*) low (1*) medium	4 low 1 medium	1 low	None(1 high*)	5 reads no writes low	none

*Indicates uses of tools in non-AIDS/HIV CHESS Modules (Sexual Assault, Alcohol and Drugs, Sex, General Health)

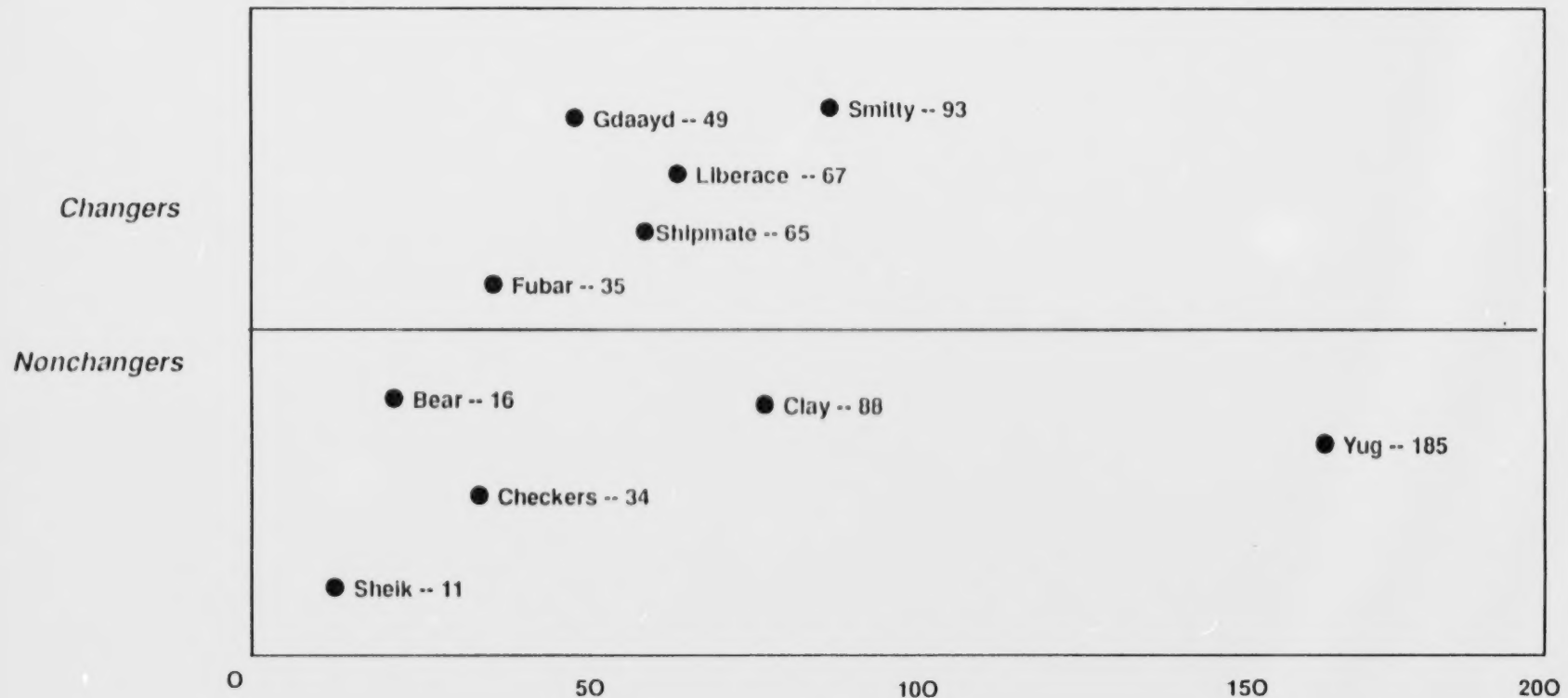
Table 4
Heavy Users

	Hard Info			Decisions		Support	
	Q&A	Libraries	Stories	Action Plan	Decision Aid	Discussion	Mail
Changers							
Liberace	1(1*) low	1 low 1(1*) medium	1 low 1 medium	1 low	None	275 reads 47 writes high	9 high
Non-Changers							
Checkers	2 low 1 medium	2 low 1 medium	1 low 2 medium	None	None	223 reads 17 writes high	none
Clay	2 low 2 medium	1(4*) low 2(1*) medium 3(3*) high	2 low 5(1*)medium 1 heavy	None	1 medium (1 high*)	95 reads 19 writes high	10 writes high
Yug	4 low 1 medium 3 heavy	6 low 2 high	7 low, 3 medium 1 high	2(1*) high 1 medium	None(1* low)	106 reads 416 writes high	1 write low

*Indicates uses of tools in non-AIDS/HIV CHESS Modules (Sexual Assault, Alcohol and Drugs, Sex, General Health)

Table 5

Combined Involvement for Changers and Nonchangers (Information tools, Decision/planning tools, support tool writes)



In hard information tools, each instance of low involvement was assigned one point, medium three points and high six points. One point was assigned for each "write" in Expert Mail and Discussion Group. One point was also assigned for each actual use of a Decision/Planning tool

**Mass media, interpersonal communication and real-life factors
in risk perception at personal and societal levels**

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**Mass media, interpersonal communication and real-life factors
in risk perception at personal and societal levels**

Abstract

The purpose of this study investigates factors influencing personal and societal risk judgments about four health issues—water contaminants, radon, AIDS, and heart disease. This study replicated and expanded the impersonal impact studies by incorporating a number of relevant factors, such as community involvement, personal experience and self-protective behaviors, as well as communication variables (both interpersonal and mass mediated communication). The data were collected through mail survey from a random sample of 750 upstate New York residents.

Major findings include that personal level and societal level risk judgments are distinct; Interpersonal communication primarily influences personal judgments; Mass media influences societal judgments for some topics but not others; Community involvement is an important predictor for the discrepancies between the personal and societal level risk judgments.

This study also found that the functions of factors vary across the four health issues. Different issues may have different degrees of desirability, perceived probability, personal experience, perceived controllability and stereotype salience. These issue characteristics should be further explored in future "personal-societal" risk perception studies.

**Mass media, interpersonal communication and real-life factors
in risk perception at personal and societal levels**

Introduction

"I never thought it could happen to *me*." People often say this when they get involved with an accident or various other negative life events. Contrary to the conventional wisdom that "the grass is always greener on the other side of the fence," many researchers have found that people often feel optimistic about their future compared to others. Studies concerning automobile accidents (Robertson, 1977), disease (Harris & Gutten, 1979; Kirscht, Haefner, Kegeles & Rosenstock, 1966), environmental risk (Weinstein, Klotz & Sandman, 1988), and other negative future events (Weinstein, 1980; Weinstein & Klein, 1995) suggest that people tend to be unrealistically optimistic about their vulnerability. Even for purely chance events, such as flipping a coin, people sometimes show optimistic biases (Langer & Roth, 1975).

The purpose of this study is to investigate factors influencing risk perceptions. Distinguishing the lay-person's risk judgments, which rely on intuition, from sophisticated analysts' risk assessments, Slovic (1987) called the former a risk perception and defined it as "the judgments people make when they are asked to characterize and evaluate hazardous activities and technologies" (p. 280).

Slovic (1987) states:

... there is wisdom as well as error in public attitudes and perceptions. Lay people sometimes lack certain information about hazards. However, their basic conceptualization of risk is much richer than that of the experts and reflects legitimate concerns that are typically omitted from expert risk assessments. (p.285)

In a similar line of reasoning, Dunwoody and Neuwirth (1991) argued for the multivariate nature of risk perception. They emphasized the distinction between cognitive and affective dimensions of risk judgment. Another approach to the multidimensional concept of risk perception comes from Tyler and Cook (1984), who differentiated between individual and societal level risk judgments. This paper uses Tyler and Cook's referential distinction in the risk perception to investigate factors affecting people's individual and societal levels of risk perception.

Several recent lines of research investigate optimistic biases as they pertain to vulnerability, or risk perception. Research findings in these areas suggest that individuals see themselves as being somehow different from others in terms of the probability of good or bad things happening to them. That is, individuals believe that negative events are less likely to happen to them than to others in society, while positive events are more likely to happen to themselves than to others across a wide range of topic areas (Glynn, Ostman and McDonald, 1995; Culbertson and Stempel, 1985).

The tendency to see others as less fortunate than oneself has been called "unrealistic optimism" (Weinstein, 1980; Weinstein, Klotz & Sandman, 1988) or "illusion of invulnerability" (LeJeune & Alex, 1973).

Weinstein (1980) states that:

According to popular belief, people tend to think they are invulnerable. They expect others to be victims of misfortune, not themselves. Such ideas imply not merely a hopeful outlook on life, but an error in judgment that can be labeled *unrealistic optimism*. (p.806)

In a similar line of reasoning, Davison (1983) suggested that in general, individuals tend to think that the media will have greater impact on others than on

themselves, a phenomenon he labeled the "third person effect." Even though the unrealistic optimism and third person effect research originated in different fields (social-psychology and communication respectively), both share some common principles.

First, both unrealistic optimism and the third person effect research has found that individuals tend to have the illusion of invulnerability. Research on the 'third person effect finds that individuals expect they are immune from influence by persuasive mass communications. Second, both lines of research focus on negative, undesirable events or results. Gunther and Mundy (1993), for example, argue that the self-other discrepancy is smaller in messages that promise to benefit the individual or which advocate socially desirable outcomes.

Third, studies in both areas suggest that the discrepancy between the self and 'others' judgments increases as the hypothetical others are defined in more broad and global terms (Perloff, 1993; Perloff & Fetzer, 1986). Finally, both areas have some implications for individual and social actions. In the case of unrealistic optimism, the behavioral implication is that it may discourage people from taking adequate precautions to avoid victimization. In the case of the third person effect, the result may be "paternalistic" attempts to regulate media content to protect the "vulnerable others."

Several studies have investigated factors influencing differential risk judgments. In one line of research, a group of researchers focused on the possible connection between media coverage of crime and public attitudes toward the risk of being a crime victim. Some have found that media presentations influence personal judgments about the likelihood of criminal victimization (Gerbner, Gross, Morgan & Signorielli, 1980), whereas others report that there is no such relationships (Tyler, 1978; Doob &

MacDonald, 1979; Hirsch, 1980). One explanation for these inconsistent findings is dealt with in the impersonal impact hypothesis (Comstock, 1982; Hawkins & Pingree, 1982; Tyler & Cook, 1984).

The major assumption of the impersonal impact hypothesis is that people can and do distinguish between two possible levels of judgment—societal and personal (Tyler & Cook, 1984). Individuals' beliefs about the larger community and conditions of community residents in relation to some social phenomenon form a "societal level" of judgment; individual's beliefs about their own condition and risks form a "personal level" of judgment (Glynn, Ostman & McDonald, 1995). Furstenberg (1971) first suggested the separation of personal and societal level concerns about crime, and several studies since then have shown this distinction empirically (Tyler, 1978; Doob & MacDonald, 1979; Tyler, 1980, 1984; Tyler & Cook, 1984; Coleman, 1993).

Another component of the impersonal hypothesis is that mass mediated messages affect people's perceptions of the prevalence of certain problems or risks within a society, but do not affect their perceptions of personal risks (Tyler & Cook, 1984). They later revised this component of the impersonal impact hypothesis to develop the "differential impact" hypothesis (Glynn, Ostman & McDonald, 1995). The impersonal impact hypothesis, thus, develops the unrealistic optimism thesis further by incorporating communication factors, especially their differential impact on risk judgments.

Culbertson and Stempel (1985) found that individuals tend to be optimistic about their personal health care (personal optimism) and pessimistic about health care in society as a whole (societal pessimism). They tried to connect these findings to the media malaise hypothesis, and argued that people rely heavily on media coverage for a

picture of society as a whole, but draw primarily on personal experience when considering their own lives.

These studies suggest that personal and societal level judgments are distinct and largely separate, and people do not necessarily draw personal implications from their general views about society. Findings that the mass media influence only, or primarily, the societal level judgments about health problems have important implications for health education campaigns through the mass media. One technique often used in mass media health campaigns is to try to increase individual perceptions of vulnerability and thus encourage initiation of self protective behaviors.

Studies concerned with societal and personal level judgments either have been experimental (i.e. not in naturalistic settings) or have excluded some of the factors which would appear to be closely linked to risk perception (Tyler & Cook, 1984; Culbertson & Stempel, 1985). An exception can be found in a study by Coleman (1993). Using an earlier version of the data set that is used in current study, Coleman analyzed various factors influencing personal and social level risk judgments. In her regression analyses, Coleman used the aggregated risk perceptions across various health issues. This clustering, as she acknowledged, made it difficult to determine factors relevant to specific health issues.

Taking those limitations of prior studies into consideration, the current study uses survey data which investigate four health related risks--radon, chemical contaminants in drinking water, AIDS, and heart disease—to examine the functions of various factors, not only mass media and interpersonal communication but also personal experience and community involvement, in people's personal level and societal level risk judgments.

The first major research question of this study is whether there is a distinction between personal level and societal level judgments in terms of the four health and environmental risks. Dunwoody and Neuwirth (1991) addressed two of the components of risk judgment: cognitive and affective. The cognitive dimension refers to how individuals assess their own likelihood of coming to harm whereas the affective dimension refers to the concern, worry, or dread that people feel about risks. Based on this distinction, the major dependent variables in the current study are risk judgments on the cognitive dimension examined on two referential levels: personal and societal levels.

The second major research question concerns which factors influence the personal and societal level risk judgments differentially. The variables investigated in this study are mass media exposure, interpersonal communication, and real life factors.

Mass mediated communication

As reviewed above, the impersonal impact hypothesis suggests that mass mediated communication affect only the societal level risk judgment. Scholars like Gerbner, Morgan and Signorielli (1982) noted that a major factor underlying Americans' attitudes about health is denial and unwillingness to believe that catastrophic illness could attack one's own immediate family. They found that those who choose television programs as a main source of health information are significantly more likely to be complacent, rather than concerned, about health.

Interpersonal communication

The impersonal impact hypothesis distinguishes informal social communications from communications through mass media. Studies have found that informal social communications differ from mass media influences on risk judgments

(Tyler, 1984; Tyler & Cook, 1984). Thus, we could expect that interpersonal communication affects the personal level of concern whereas the mass media exposure influences the societal level judgments.

Real-life factors

Past personal experience is another important factor in risk perception. Tversky and Kahneman (1973, 1974) argued that personal experience makes it easier to imagine situations in which the event could occur, leading to greater perceived probability through the mechanism of "availability."

Social context is crucial to understanding how people perceive risks. If people participate more in various community organizations, they might become less individualistic and develop a feeling of community with those around them. This might, in turn, decrease the discrepancy between the personal and societal level judgments as the individual feels more a member of the community rather than different from and separate from the community.

Stereotype salience also is a factor that might influence the process of impersonal impact. For many events, including various health problems, people may have a stereotyped conception of the kind of person to whom this event happens. If people do not see themselves as fitting the stereotype, the representativeness heuristic suggests that people will conclude that the event will not happen to them, overlooking the possibility that few of the people who experience the event may actually fit the stereotype (Tversky & Kahneman, 1977; Weinstein, 1980). If stereotypes of the victim carry some kind of ethical stigma as in the case of AIDS, expressing personal invulnerability tends to serve an ego-defensive function, and the optimistic biases will be exaggerated. We would expect this stereotype to be exaggerated by media coverage

of AIDS, thus leading to a greater discrepancy between one's personal assessment of risk and a societal level perception.

In summary, this study tests the following hypotheses:

H.1 Personal level risk judgment is distinct from societal level risk judgment: Across the four issues, people will perceive higher risk at the societal level than at the personal level, and also functions of various factors will be different across the two levels of judgments.

H.2 Mass media exposure affects people's societal level judgment more than their personal level judgment.

H.3 Interpersonal communication affects personal level judgment more than the societal level judgment.

H.4a The discrepancy between personal and societal level judgments will be greater in the case of AIDS compared to the other health problems due to stereotype salience.

H.4b In the same line of reasoning, the impersonal impact of mass media will be greater in the case of AIDS compared to the other three topics.

H.5 If people are more involved in the community, the discrepancies between personal and societal level risk judgments will be less.

Methods

Data

Data for this study came from a mail survey of a random sample of 1,500 households in the Northeast. The sample was constructed from a composite non-redundant telephone list and drivers license list. The study used a 12-page booklet questionnaire with a 3-wave mailing and telephone follow-up of non-respondents. Of the original sample, 351 were either bad addresses or otherwise unqualified respondents. Individuals from 750 households responded for a 65% response rate.

Fifty-one percent of the respondents were male, 37% had graduated from college and 11% had not finished high school. Age of the respondents ranged from 19 to 94

with a mean of 50 and a median of 48; males were only slightly older than females as the mean values were 51 and 49 respectively. Twenty-three percent of the respondents had income less than \$20,000 and 25% had incomes above \$60,000. These demographic figures compare favorably with census figures as shown in Table 1.

Table 1: Study sample compared with census data

		<u>Census (%)</u>	<u>Study Sample (%)</u>
Gender	Male	52	51
	Female	48	49
Married, living with spouse		63	69
Education	Elementary	12	4
	Attended HS	11	7
	Graduated HS	37	32
	Some College	17	19
	Graduated	23	38
Income	Less than \$10,000	11	8
	\$10-29,999	28	32
	\$28-49,999	30	26
	\$50,000 or more	34	31

Measurement¹

Issues investigated were chemical contaminants in drinking water, radon, AIDS and heart disease. Risk judgments—the major dependent variables of this study—were measured across the four health issues by asking "How likely do you think it is that [*a specific issue*] will cause you health problems?" at the personal level and "How likely do you think it is that [*a specific issue*] will be a very serious problem for our country in the

¹ Questions and response categories for each concepts are reported more fully in the Appendix A.

future?" at the societal level. The answers were coded in a 5-point scale—1 for "Not at all likely" through 6 for "Has already caused problems."

There are five major groups of independent variables—mass media exposure, interpersonal communication, community involvement, personal experience, and demographics. Three mass media exposure variables were included in the analysis—television, newspaper and magazine exposure. Television exposure was measured by four questions about national network news, local news, news documentaries and science programs, which are more likely to cover health issues (Chronbach's alpha was .70). Newspaper and magazine measures focused on exposure to specific content: For newspaper exposure, three questions about environment, health/medical and food/nutrition were used (Chronbach's alpha was .87), whereas for magazine reading, two questions about health/medical and science magazines were used (Chronbach's alpha was .38). The reliability was low for the magazine measures, but is judged acceptable because there are only two items, and the Pearson correlation coefficient for the two items is .24 ($p < .001$).

Interpersonal communication was measured by two questions for each health problem: (1) talking with neighbors and the others, and (2) talking with knowledgeable experts about the specific topic. For chemical contaminants in drinking water, AIDS, and heart disease, the two questions were combined and recoded as a 3-point scale from 0 through 2. The reliabilities measured by Chronbach's alpha are .48 for water contaminants, .56 for AIDS, and .52 for heart disease. These reliability measures are relatively low, but are judged acceptable because there are only two items and the Pearson correlation coefficients for the two items across the four health issues are .32, .40, and .35 (p values for all three $< .001$). There were only 61 (8.4%) people of the

sample had talked about radon with neighbors or experts. Thus for the case of the radon, a dummy variable was created with 0 for those who never talked with neighbors nor experts, and 1 for those who had talked in the last month.

Community involvement was measured with four different questions asking about various community group activities (Chronbach's alpha was .59). They were combined and recoded as a four-point scale, 0 through 3 with 0 representing no community involvement, 2 moderate involvement, and 3 high involvement.

Personal experience relevant to each of the four health problems was asked about self, parents, friends and acquaintances. These measures were coded as 1 through 5. A score of 5 represents "self experience" with the health problem (i.e., the respondent has heart disease, AIDS, etc.). The smaller the score, the further the risk experience is from the respondent. A score of 2, for example, would be that the respondent has a friend with heart disease or AIDS, whereas 1 means "no experience."

Self protective behaviors (e.g., installing water filters and blood cholesterol level tests) should affect individuals' risk perception. Few studies have taken past self-protective behaviors into consideration. Self protective behaviors for each health problem except AIDS were measured by dummy variables. Respondents were asked if they had installed water filters or if they tested their drinking water for contaminants; if they had tested their blood for cholesterol; if they tested their home's radon level. In the case of heart disease, we also controlled for the respondents' exercise (a dummy variable) and diet habits. These variables were included in the regression as control variables. In addition, four demographic characteristics—age, income, education and gender were also controlled in the regression analyses.

Results of the data analysis

The first step in the data analysis was to check the mean differences in people's personal level and societal level judgments for each of the four topics. Table 2 shows the results of the paired t-test of the mean differences across the four topics. It appears that people, in general, have more concern at the societal level than at the personal level for each topic. As we expected in hypothesis 4a, AIDS is the case where the most discrepancy between the two levels of judgment was found: Personal concern about AIDS was the lowest of all four health issues, but the highest of all at the societal level (means are 2.24 and 5.20 respectively). With regard to radon, people are not concerned at personal level and only slightly concerned at the societal level (means are 2.88 and 3.74 respectively).

Table 2. Paired t-test for the mean differences across personal and societal level concerns for each topics.

	Personal level		Societal level		Paired t-test	
	Mean	sd	Mean	sd	t	df
Water chemical	3.56	1.28	4.70	1.06	24.97**	731
Radon	2.88	1.06	3.74	1.15	18.91**	723
AIDS	2.24	1.34	5.20	1.13	48.91**	736
Heart disease	3.83	1.26	4.92	1.11	20.79**	740

** p<.001

The peculiarity of AIDS in terms of the discrepancy between the two levels of judgment also is presented in Figure 1, which shows the percent of respondents for each value of discrepancy between societal and personal levels. The discrepancy values were computed by subtracting the values of personal level concern from the values of societal level concern for each respondent. Mean discrepancy values with standard deviations in parentheses for each issues are 1.09 (1.43) for water chemicals; 2.96 (1.64)

for radon; 0.85 (1.21) for AIDS; and 1.15 (1.24) for heart disease. As shown in figure 1, more people have positive scores on the discrepancy measure, suggesting that in general, they have a pattern of personal optimism and impersonal pessimism across all four topics.



Figure 1. Percentages of the respondents for each level of discrepancy between the two levels of judgments.

To test hypotheses 1 through 4, two regressions, using personal level concern and societal level concern as the dependent variables, were run for each of the four topics (see Table 3). The model fit measures (R^2) show significant p values across all of the regressions.

Hypothesis 1 predicted that personal level risk judgment would be distinct from societal level risk judgment. The regression results show that people's personal and societal level judgments are distinct from each other. That is, people's concern about

Table 3. Results of regression of personal and societal level risk judgments about four health issues on demographics, real-life factors, and communication.

	Water Contaminants				Radon				AIDS				Heart Disease			
	Personal		Societal		Personal		Societal		Personal		Societal		Personal		Societal	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Demographics		4.16**		3.23**		4.77**		5.51**		2.10*		4.89**		3.55**		4.54**
Age	-.17**		-.12**		-.11*		-.05		-.15**		-.02		-.03		-.15**	
Sex	.10*		.13**		.14**		.23**		.00		.18**		-.03		.10*	
Education	-.04		-.07		-.10*		.02		-.13**		.10*		-.01		.09	
Income	-.09		-.02		-.08		-.03		-.04		-.05		-.14**		-.09*	
Behaviors		0.54		1.28**		0.07		0.01		N/A		N/A		4.71**		1.26
Real-Life factors		0.18		1.76**		0.62		0.23		0.81		1.09*		14.44**		1.29*
Involvement	-.04		-.10*		.05		-.06		.06		-.05		.02		-.08*	
Experience	.02		.11**		.03		-.03		.04		.10*		.39**		.08*	
Interpersonal		2.43**		1.50**		1.21**		0.28		0.14		0.17		0.42		0.34
Talking	.14**		.09*		.11**		.05		.02		.04		.07		.06	
Mass Comm.		1.46*		4.55**		0.79		0.90		1.20		0.18		0.31		0.46
TV	.08		.14**		.09*		.08		.06		.01		.06		-.06	
Magazine	.09*		.15**		.01		.04		.09*		.01		-.03		.00	
Paper	-.02		-.02		-.03		-.05		-.01		.04		-.03		.06	
Total R² (%)		8.77**		12.33**		7.46**		6.93**		4.25**		6.33**		23.43**		7.88**

* $p < .05$ ** $p < .01$

a. 1=male; 2=female

various health problems is a function of different factors or different functions of the same factor across the two levels. For example, in the case of the chemical contaminants in drinking water, community involvement, personal experience and mass media were significant only for people's societal concern. Education, age and interpersonal communication were significant factors only for personal concern about radon.

For AIDS, age and magazine reading were significant for personal concern, whereas gender and personal experience were significant for societal concern. On the other hand, age, gender and community involvement were significant factors for societal concern for heart disease but not for personal concern. The most interesting distinction was found in the relationship of education to concerns about AIDS. At the personal level, the more educated a person is, the less concerned s/he becomes ($\beta = -.13$, $p < .01$); at the societal level, the direction is reversed—the more educated a person is, the more concerned s/he becomes ($\beta = .10$, $p < .05$). These results support the first hypothesis that personal level risk judgment is distinct from the societal level risk judgment.

The second hypotheses stated that mass media exposure affects people's societal level judgment more than their personal level judgment. This hypothesis was only partly supported. For the case of the chemical contaminants in drinking water, mass media strongly influenced societal judgment ($\beta = .14$, $p < .01$ for TV; $\beta = .15$, $p < .001$ for magazine) compared to personal level judgment, in which both TV and magazines showed border line p values (.069 and .047 respectively). But the function of mass media varies across the four topics. The predicted pattern was apparent only in the case of the chemical contaminants and radon case, but not in AIDS or in heart disease.

The third hypothesis that interpersonal communication affects personal level judgment more than societal level judgment was partially supported. In the case of

radon, interpersonal communication shows the pattern predicted: a strong influence only on the personal level. In terms of water contaminants, interpersonal communication showed a strong influence on the personal level, but a border line *p* value (.041) for the societal level concern. For the other two health issues—AIDS and heart disease—interpersonal communication was not a significant predictor either for the personal or the societal level risk judgments.

Hypothesis 4a suggests that the discrepancy between people's personal and societal level judgments will be greater for AIDS. As shown in Table 1, this hypothesis was supported. But hypothesis 4b about the impersonal impact of mass media was not supported by the regression analysis. That is, the mass media showed no significant influence on either of the personal or societal level risk judgments². This finding could be a function of a ceiling effect. That is, the mass media have been saturated with AIDS coverage and most people are aware and know how it is transmitted. As a result, there is little new information about AIDS in the mass media which might affect people's personal and societal level of concern. But, as shown in Table 1, AIDS has the greatest discrepancy between personal and societal concern among the four topics. The relationship of personal experience with the four risk factors was inconsistent across personal and societal judgments. For AIDS and chemical contaminants in drinking water, personal experience showed a significant relationship to only societal concern. It may be that with AIDS, some combination of personal control and a self-serving bias allowed individuals to reason that they personally were not at risk, but that overall society was at risk. Even when people knew and had heard of somebody with

² Mass media were not significant in a regression in which the difference between the two levels of concern was predicted (See table 4).

AIDS, they still felt safe because most people believe that they know how to prevent the disease. Personal experience with AIDS increased societal level concern but not personal concern.

The case of water contaminants, however, is more puzzling. One possible explanation for the lack of influence of personal experience on personal level risk judgment might be that there are fairly easy ways of controlling most chemical contaminants in water, such as installing water filters. Ease of control may have alleviated the impact of personal experience on people's personal level of concern.

The fifth hypothesis states that the discrepancy between personal level and societal level concerns for each topic will be smaller for the people who are more involved in community service. To test this hypothesis, an absolute value of the difference between each respondent's personal level concern and societal level concern for each topic was regressed on the same independent variables as in the prior regressions.

The overall fit of the model was significant for two of the four issues: AIDS and heart disease (see Table 4). The coefficients for involvement are all negative and significant at .05 except for the case of water contaminants and heart disease. But, in the case of heart disease, the p value for the coefficient is .089, which becomes significant if a one-tailed p value was applied since the hypothesis is directional. The insignificant result in the case of water chemicals is surprising especially because the issue is often a community-wide problem. That is, if one individual has problems with drinking water, it is highly likely that the whole neighborhood shares the same problem.

Several demographic factors, such as education, age and gender, account for the observed discrepancy in risk judgment about AIDS, which has the highest mean value of the dependent variable among the four issues. Both age and education are positively related to the discrepancy of personal and societal concern for AIDS. Women also showed greater discrepancy in their judgment about AIDS than did men.

For heart disease, personal experience decreases the difference between personal and societal levels of concern. Even though mass media was not a significant predictor for either personal or societal concern, TV exposure appears to decrease the difference between personal and societal levels of concern ($\beta = -.09$, $p < .05$).

Table 4. Results of regression of the absolute differences between personal and societal level risk judgments.

	Water Contaminants		Radon		AIDS		Heart Disease	
	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Demographics		1.01		1.79 [*]		3.28 ^{**}		3.14 ^{**}
Age	.09		.10 [*]		.12 ^{**}		-.33	
Sex ^a	.01		.08		.12 ^{**}		.06	
Education	.00		.09		.17 ^{**}		.07	
Income	.07		.08		-.00		.04	
Behaviors		0.28		0.01		N/A		0.96
Real-Life factors		0.15		1.26 [*]		0.95 [*]		4.20 ^{**}
Involvement	-.01		-.12 ^{**}		-.09 [*]		-.07	
Experience	.05		-.03		.04		-.21 ^{**}	
Interpersonal		0.49		0.03		0.00		0.00
Talking	-.08		.01		.01		.01	
Mass Comm.		0.12		0.05		0.43		0.65
TV	.03		.01		-.05		-.09 [*]	
Magazine	.02		.02		-.04		.04	
Paper	-.01		.00		.02		.01	
Total R ² (%)		2.04		3.15		4.66 ^{**}		8.95 ^{**}

a. 1=male; 2=female * $p < .05$ ** $p < .01$

Summary and discussion

Traditionally studies on risk perception have come from geography, sociology, political science, anthropology and psychology (Slovic, 1987). Many of those studies approached risk perception as a unidimensional concept that can be captured unidimensionally in the ubiquitous "risk estimate" (Dunwoody & Neuwirth, 1991). Following a group of scholars who argued for the multidimensional aspects of risk perception (i.e., Dunwoody & Neuwirth, 1991; Slovic, 1987; Coleman, 1993; Tyler & Cook, 1984), this study investigated two different referential components of risk judgments—personal and societal level judgments. This study has replicated and expanded the impersonal impact studies by using survey data, which provide a more natural picture of people's risk judgments about various health issues, and by using issue-specific risk judgments, which allow to investigate issue-specific functions of various factors.

In an effort to illuminate "the multivariate nature of risky situations," as Dunwoody and Neuwirth (1991) point out, this study has incorporated a number of relevant factors which may be related to risk perceptions, such as community involvement, personal experience and self-protective behaviors, as well as communication variables (both mass media and interpersonal).

One finding is that personal level and societal level risk judgments appear to be distinct and should be dealt with separately in risk perception studies to illuminate the complex nature of risk perception. In addition, interpersonal communication appears to influence people's concern about health problems primarily at the personal level. The mass media, especially television and magazine exposures, on the other hand, have

significant impacts at the societal level for some topics but not others. These differences need further exploration.

Community involvement appears to be an important predictor for the differences in concern about health topics at the personal and societal levels. It seems that if people get involved with their community, they hold less discrepant visions between social and personal risks.

In addition to the relatively consistent findings across the four issues, this study found that the functions of factors vary across health issues. AIDS, for example, appeared to be very different from other issues in many ways. In the case of AIDS, the discrepancy between people's personal level and societal level concern might not be the "unrealistic" optimism, but rather quite "realistic" optimism, considering the specific route of the virus transmission. The current data did not allow a test of this speculation.

Different issues may have different degrees of desirability, perceived probability, personal experience, perceived controllability and stereotype salience. Studies in optimistic bias in "self-other" risk comparisons found, in general, that optimism is greater for risks rated low in probability and for risks judged to be controllable by personal action (Weinstein, 1989). These issue characteristic factors found in unrealistic optimism studies should be incorporated in the future studies of the personal-societal risk comparisons.

Among issue characteristic factors, perceived controllability deserves more attention from researchers. Some studies on unrealistic optimism have pointed to the importance of perceived controllability in the operation of unrealistic optimism: the greater the perceived controllability of a negative event, the greater the tendency for

people to believe that their own chances to have the problem are less than average (McKenna, 1993; Weinstein, 1980). Thus, we could expect that perceived controllability of health problems would increase the discrepancy between risk judgments at the personal and societal levels.

Mass media variables used in this study were not issue specific but did focus on news, science and health information. Even though we measured them by specifically asking about some health/medical or scientific issues for newspapers and magazines, we do not know how often the respondents were exposed to each specific health issue, such as water contaminants, radon, AIDS or heart disease; neither do we know about the content of the media coverage for those issues. Studies with multiple-method approach using both content analysis and survey data analysis are required for a better understanding of the functions of communication factors in risk judgments. Also attention to mass media in addition to a simple measure of exposure might illuminate the rather subtle functions of mass media in risk perception.

The measurement of the societal risk judgment of this study is different from the usual operationalizations used in similar studies. This was an attempt to overcome the tendency to judge society based on smaller segments. There are always segments of society that are at greater risk. Thus, asking whether an individual is at greater risk than others opens the door to making that judgment based on a perceived small group which may actually be at greater risk. The attempt in this study was to operationalize the societal level variable in such a way that requires respondents to generalize more broadly. Future studies may wish to re-operationalize this variable taking into account such issues. As Slovic (1987) argued, risk perception means more than expected probabilities of getting involved with a health problem. Attempts to understand risk

perceptions should utilize broader conception of risk, incorporating not only the quantitative but also the qualitative characteristics, such as familiarity, control, catastrophic potential, equity and level of knowledge.

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"Personal-societal" risk comparison

Appendix A

Personal risk judgment:

How likely do you think it is that chemical contaminants in your drinking water (radon in your home; AIDS; heart disease) will cause you health problems?

Societal risk judgment:

How likely do you think it is that chemical contaminants in your drinking water (radon in your home; AIDS; heart disease) will be a very serious problem *for our country* in the future?

For both of the risk judgments, response categories were "not at all likely," "not very likely," "not sure," "somewhat likely," "very likely," and "has already caused problems" (Each was coded as 1 through 6 respectively).

Mass media:

How often do you read articles in your newspaper about [*environment; health/medical; food and nutrition*]?

How often do you watch the following kinds of daily or weekly television programs [*national network news; local news; news documentaries; science programs*]?

How often do you read the following types of magazines [*health or medical magazines or newsletters; science magazines*]?

For each of the mass media questions, response categories were "almost never," "once or twice/wk," "three or four times/wk," and "Five or more times/wk" (Each was coded as 1 through 4 respectively).

Interpersonal communication

Within the past month, about how many times would you say you have talked with your neighbors about the following topics [*chemical contaminants in drinking water; heart disease caused by diet and lack of exercise; lung cancer from radon in your home; AIDS*]?

Within the past month, about how many times would you say you have talked with experts, professionals, or other highly knowledgeable people about the following topics [*chemical contaminants in drinking water; heart disease caused by diet and lack of exercise; lung cancer from radon in your home; AIDS*]?

For each of the interpersonal communication questions, response categories were "never," "1-2 times," "3-4 times," and "5 or more times" (Each was coded as 1 through 4 respectively).

Experience

Have you or others you know experienced any of the following health problems [*heart disease; lung cancer without smoking; AIDS*]?

"Personal-societal" risk comparison

For each of the personal experience questions, response categories were "no one I know," "acquaintances," "friends/relatives," "mother/father," and "I have" (Each was coded as 1 through 5 respectively).

For chemicals in the water, we used two questions to create a comparable scale to the ones for the other problems above:

Who do you know who has or has had chemical contaminants in their drinking water?

1. no one I know
2. acquaintances
3. friends, relatives
4. neighbors

For those who said that they tested for chemical contaminants, we asked about the test result and coded as 5 if it showed contamination and added that to the scale came out from the above question.

Involvement

About how much time *each month* are you involved in activities of the following groups [neighborhood groups; service, professional or youth oriented groups; religious organizations; other organized groups such as recreational/social groups]

For each of the involvement questions, response categories used were "none," "less than one hour," "one to five hours," and "more than five hours" (Each was coded as 1 through 4).

Demographics

Which income category best describes the annual gross income (before taxes) for all wage earners in your immediate family living at this address last year? The response categories used were "less than \$10,000" "\$10,000-\$19,999" "\$20,000-\$29,999" "\$30,000-\$39,999" "\$40,000-\$49,999" "\$50,000-\$59,999" and "\$60,000 or more." Each was coded as 1 through 7 respectively.

How many years did you attend school? Response categories were "1. elementary school (1-9 years)," "2. attended high school (9-11 years)," "3. graduated high school (12 years)," "4. attended college," and "5. graduated college."

Are you Male ____ or Female ____ (coded male as 1; female as 2)

How old were you on your last birthday? ____ years

Behavior:

Please indicate the extent you have done or plan to do the following.

- a. installed water filter
- b. tested my home for indoor radon
- c. had your blood cholesterol level tested
- d. tested my water for chemical contaminants

For each of the questions above, response categories were "I see no need to do this," "I may consider doing this," "I plan to do this," and "I have done this." For radon, the

"Personal-societal" risk comparison

last category was coded as 1 and all the others as 0. For blood cholesterol test, if they tested and the results showed problem they were coded as 2; if they tested and the results were okay coded as 1, and coded as 0 if they haven't tested. Behaviors related to water contaminants were coded as 1 if respondents either installed water filter or tested for water contaminants and 0 for the others.

Appendix B. The unstandardized regression coefficients and p values for the regression of the personal and societal level risk judgments.

	Chemicals in water				Radon				AIDS				Heart Disease			
	Personal		Societal		Personal		Societal		Personal		Societal		Personal		Societal	
	b (se)	p	b (se)	p	b (se)	p	b (se)	p	b (se)	p	b (se)	p	b (se)	p	b (se)	p
Income	-.06 (.03)	.051	-.01 (.03)	.734	-.05 (.03)	.070	-.02 (.03)	.463	-.03 (.03)	.421	-.03 (.03)	.235	-.09 (.03)	.001	-.05 (.03)	.046
Education	-.05 (.06)	.365	-.07 (.05)	.136	-.10 (.05)	.042	.02 (.05)	.684	-.16 (.06)	.006	.10 (.05)	.032	-.01 (.05)	.830	.09 (.05)	.074
Sex	.26 (.11)	.014	.27 (.09)	.002	.29 (.09)	.001	.52 (.10)	.000	.01 (.11)	.918	.38 (.09)	.000	-.07 (.10)	.479	.23 (.10)	.017
Age	-.01 (.00)	.000	-.01 (.00)	.008	-.01 (.00)	.021	-.00 (.00)	.301	-.01 (.00)	.001	-.00 (.00)	.702	-.00 (.00)	.508	-.01 (.00)	.002
Involve	-.05 (.05)	.327	-.10 (.04)	.018	.05 (.05)	.242	-.07 (.05)	.184	.07 (.06)	.180	-.05 (.05)	.228	.02 (.05)	.649	-.09 (.05)	.050
Experience	.03 (.06)	.630	.14 (.05)	.007	.04 (.05)	.465	-.03 (.06)	.543	.10 (.10)	.316	.19 (.08)	.022	.43 (.04)	.000	.08 (.05)	.049
Talking	.28 (.09)	.001	.15 (.07)	.041	.43 (.16)	.009	.21 (.18)	.242	.03 (.07)	.707	.05 (.06)	.397	.11 (.06)	.069	.08 (.06)	.175
TV	.04 (.02)	.069	.05 (.02)	.003	.04 (.02)	.372	.03 (.02)	.065	.02 (.02)	.165	.00 (.02)	.855	.02 (.02)	.177	-.02 (.02)	.192
Magazine	.08 (.04)	.047	.12 (.03)	.000	.01 (.04)	.844	.04 (.04)	.322	.08 (.04)	.047	.01 (.03)	.834	-.02 (.04)	.532	.00 (.04)	.947
Paper	-.01 (.02)	.612	-.01 (.02)	.604	-.01 (.02)	.551	-.02 (.02)	.332	-.00 (.02)	.859	.02 (.02)	.357	-.01 (.02)	.442	.02 (.02)	.198

Appendix C. The unstandardized regression coefficients and p values for the regression of the absolute discrepancies between personal and societal level risk judgments.

	Water Contaminants		Radon		AIDS		Heart Disease	
	b (se)	p	b (se)	p	b (se)	p	b (se)	p
Income	.04 (.03)	.172	.04 (.03)	.090	-.00 (.04)	.936	.02 (.03)	.447
Education	.00 (.05)	.976	.09 (.05)	.052	.23 (.07)	.001	.09 (.06)	.122
Sex	.01 (.10)	.886	.16 (.09)	.081	.37 (.13)	.004	.14 (.10)	.175
Age	.01 (.00)	.061	.01 (.00)	.035	.01 (.01)	.007	-.00 (.00)	.495
Involve	-.01 (.05)	.859	-.12 (.05)	.008	-.13 (.06)	.038	-.09 (.05)	.089
Experience	.07 (.06)	.254	-.03 (.05)	.555	.11 (.12)	.353	-.23 (.05)	.000
Talking	-.12 (.09)	.076	.06 (.17)	.735	.02 (.08)	.839	-.01 (.06)	.848
TV	.01 (.02)	.499	.00 (.02)	.858	-.03 (.02)	.273	-.04 (.02)	.049
Magazine	.01 (.04)	.735	.02 (.04)	.650	-.05 (.05)	.326	.04 (.04)	.381
Paper	-.01 (.02)	.747	-.00 (.02)	.981	.01 (.02)	.642	.00 (.02)	.886